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I

EDUCATIONAL AIMS AND EDUCATIONAL VALUES

INTRODUCTORY NOTE—The papers that follow, numbered I to VIII, inclusive, were read before the Harvard Teachers' Association on March 9, 1895. This association was founded in 1891. Its members are officers and graduates of Harvard University, and persons who have been students at the University either in term time or in the Summer Schools, and who are now teaching or intend to be teachers. Its objects are to promote the development of the study of Education and Teaching at Harvard University, to promote the professional advancement of the members of the Association, and especially to promote the free interchange of thought upon educational questions among the teachers whom the University has sent forth.

Of the questions underlying the making of courses of study the question of educational values is among the most important. Unless we are willing to adopt blindly a recommended or prescribed course of study which someone else has made—someone, perhaps, who has just as blindly followed someone else—the question of educational values must be intelligently considered. If certain subjects are chosen for a course of study because they are deemed suitable to occupy the time and attention of children and youth, there must be a reason for this choice—or there should be—independent of personal prejudices or mere tradition. If other subjects are preferred, there should likewise be a clear and valid reason for the preference. Further, after a subject has been chosen, it is not enough to recommend that it should be pursued for four years or for three or two years: we need to know why that subject may justly claim the proportion of time allotted to it.

That is to say: choice of subject matter and relative time

allotment being rationally dependent on the educational values of the several subjects, the formulation of these values constitutes educational principles, which we need in order to construct our programmes on a rational basis.

In this paper the attempt is made to find some of these educational principles. The attempt is first made to set forth, in general terms, the educational values of all the subjects of instruction, and next to determine the relative educational values of the different subjects without explicitly taking into account the stages of development through which the pupil passes. The principles thus obtained are then applied to determine the relative educational values of the different subjects during the stages of elementary and secondary education.

It goes without saying that the principles given below are not regarded as a final solution of the question of educational values. The whole question, in its purely theoretical aspects, is still too new to make such a conclusion possible. Moreover, generations of intelligent experimenting must ensue before these theoretical conclusions can be verified in practice. Nevertheless, the principles referred to seem to me to have a real value, because they offer at least a provisional basis for the rational and not merely imitative construction of courses of study.

With this explanation, I trust that the somewhat abstract and seemingly dogmatic form, in which for the sake of brevity and at the same time of directness and clearness, I have been obliged to present the discussion, will not be misunderstood. It is, of course, impossible, in the brief space at my disposal, to make any extended argument for the positions taken. I can only indicate the direction of the argument.

I

It is evident that any estimate of educational values must ultimately depend on educational aims. The studies chosen are the means (not the sole means, of course, but the most important means) for the realization of those aims. The conception of the end to be attained must therefore determine

the value of the means proposed; and any consideration of educational values must accordingly include a consideration of educational aims.

By the educational value of a subject I mean its efficacy in promoting the realization of the aim of education. The aim of education is to prepare for complete living. To live completely means to be as useful as possible and to be happy. By usefulness is meant service, *i. e.*, any activity which promotes the material or the spiritual interests of mankind, one or both.

One man's usefulness and happiness may be best promoted through intellectual activity, another s through the work of his hands; one man may be most useful and happy as an artist or a musician, another as a moral or spiritual leader. It is not necessary to multiply instances. The kind of work a man voluntarily engages in, and its value for himself and for society, will evidently always depend on his dominant interests, *i. e.*, on his motives or incentives to activity, and on his skill. Since skill is only fully developed power we may say, in general, that, physical vigor being assumed, a man's usefulness and happiness depend on intellectual incentives and power; artistic or æsthetic incentives and power; constructive incentives and power as applied to material things; character, comprising ethical incentives and conduct.

Although in what precedes the emphasis has been laid on preparation for usefulness and the happiness which depends on usefulness, it is evident that, while a man's happiness depends in large part on his usefulness, it also depends on the proper and adequate enjoyment of whatever leisure he may earn. Consequently a man requires careful preparation for the proper and adequate enjoyment of the refined pleasures of cultivated life as well as for usefulness. But this preparation obviously depends, like his preparation for usefulness, on the scope, kind, degree, and permanence of his interests and power.

Consequently the educational values of different subjects, *i. e.*, their efficacy in promoting the realization of the aim of education as defined above, consists (*a*) in the scope, kind,

strength, and permanence of the incentives to activity; and (*b*) in the degree of permanence of the power to think and to execute that those subjects may develop.

Here, then, we have a common measure of educational value. Its factors are incentives and power. The different kinds of incentives and power, and the conditions under which they develop strength and permanence, next demand attention.

No one subject is capable of yielding all these incentives equally, but they are found in varying degrees in all subjects; the desire to know, to understand, to master the subject of pure mathematics or of physics, for example, is nearly a purely intellectual incentive; the desire to emulate the virtues of some moral or spiritual leader, or the devotion to duty of some hero of history or of literature is mainly an ethical incentive; the charm of the fine arts, impelling to exercise in the use of the pencil or the brush, is chiefly an æsthetic or artistic incentive; the fascination of manual construction, impelling to the use of tools in shaping material things, is, similarly, mainly a constructive incentive. It is evident, therefore, that the kinds of incentives to activity, whether intellectual, æsthetic, moral, or constructive, derivable from the course of study, depend on content (the nature of the subject-matter).

Since incentives are impulses to activity growing out of interest in the subject-matter, they will develop strength and permanence when interest in the subject-matter is strong, real, and permanent. Interest is impossible unless the subject is understood to some degree at least, and unless the pupil believes he has some capacity for it. Sufficient time must always be allowed in practice to determine whether the pupil's interest is real or merely imitative and spurious. Real interest will always be accompanied by capacity for a subject, and may usually be recognized by persistent, independent, and successful pursuit of a subject; for the pupil's spontaneous activity and achievement will always be along the lines of his preferences. Independent pursuit does not mean without the teacher's guidance, but it does mean without the teacher's

constant urging or assistance. Real interest is accordingly the sole condition of strong and permanent incentives.

Power means ability to do something—to bring about results. The results achieved will always be in some one field of activity, however; and the kind of power developed through the pursuit of a given subject will consequently be usually restricted to power in dealing with data of a particular sort. That is to say, power in physics is different from power in Latin; and these forms of power are different from power in plastic art or pure mathematics, as these last are different from each other. There is no such thing as power in general that can be cultivated through the pursuit of any one subject, and can then be drawn upon at any time for successful achievement in other subjects. That a man shows power first in classics and afterward in mathematics or botany, for example, does not prove that the man's mathematical or scientific ability was developed through the classics. It proves only that the man has both linguistic and mathematical or scientific ability. It does happen, of course, that different subjects like mathematics and physics, or physics and chemistry, or drawing and painting, are closely related; and hence that the data of one subject are often found to some extent in another, and also that the method of one subject can be appropriately applied to another. In such cases the power developed through one subject may, to some extent, be carried over to the related subjects. But, in general, the relations of the subjects will not be close enough to justify the assumption that power may be developed through one subject for use in other subjects. We may say, therefore, that the kinds of power developed by a given subject will be: (*a*) specific—depending on the particular data with which the subject deals (the nature of the subject-matter); and (*b*) general—depending on the extent to which the same or similar data are found in other subjects, and the extent to which the method of one subject may be applied to other subjects.

The power developed will always be chiefly specific: but if, through correlation, the mutual ramification and interdepend-

ence of subject are traced; and further, if the method of one subject is explicitly carried over to other subjects to which it can be legitimately applied, the power developed will also be, to some extent, general.

The kinds of power developed through the different subjects having been described, we have still to examine the conditions under which this power develops strength and permanence. Power is developed for the sake of cultivating desirable habits of thought, expression (in words or in some other appropriate way), achievement, and conduct; since such habits constitute usefulness and usually bring happiness.

The degree and permanence of any power, and the consequent inculcation of desirable habits of thought, expression, achievement, and conduct, are developed through continuity and intensiveness in the pursuit of any of the subjects of instruction, each within its own field; but such power can be developed economically (advantageously) only through interest, *i. e.*, only when the subject actually yields one or more of the incentives enumerated above; or, in other words, the conditions under which strength and permanence of power are developed are continuity and intensiveness in the pursuit of any subject, based on interest.

It is of course true that power habitually exercised, even without interest, may result in the attainment of the beneficent "virtues of work" which, even when acquired through mere drudgery, contribute to usefulness and happiness. It must be borne in mind, however, that work without interest is drudgery, whatever the achievement may be; while work with interest is a constant source of happiness. During the school period the virtues of work cannot, however, be advantageously developed without interest, and it is doubtful if they ever can. During the school period aversion and evasion are more frequently cultivated than power and skill through the forced pursuit of permanently uninteresting subjects—subjects for which the learner has no capacity. When that does not happen, the pernicious habit of being satisfied with inadequate or partial achievement is very likely to be the result. In neither

case does the individual develop his real capacity, nor does he acquire right habits. Occasionally, through some unusually strong extraneous incentive, a pupil will pursue successfully the apparently uninteresting, but such cases are rare and usually temporary. In no case can the degree of power thus developed be compared with the power developed through real interest, and the only resulting permanence to be thought of is the permanence of moderate instead of increasing power. Even in adult life, without interest and capacity (for the two always go together), power and skill and the consequent "virtues of work" must be developed, if at all, through extraneous motives. It must be evident, however, that, without interest, both in youth and in adult life, power is not advantageously nor economically cultivated, because the individual is not working along the lines of least resistance; so that whatever power and skill he may develop and however industrious he may be, his accomplishment will fall behind the accomplishment of others possessing interest and capacity in the same field both in respect to quantity and quality of achievement; and far behind what his own achievements might be in the direction of his own interest and capacity. The effect of such incomplete or reduced achievement, both on the usefulness and consequent happiness of an individual, is obvious. The fundamental condition of the advantageous development of increasing power, *i. e.*, of the degree and permanence of power, is accordingly interest.

II

From the foregoing it appears that incentives and power may be cultivated by all the subjects in the course of study, each subject yielding its own peculiar incentives and power. Since these constitute our common measure of educational values, we should therefore accord equal educational values to all subjects, provided only that they develop interest; for, as we have seen, interest means incentives, and incentives lead to activity which may develop power. But we have still to compare the incentives developed through the different subjects

with each other. If we find certain subjects yielding higher incentives than others, or subjects richer in incentives than others, we must accord to such subjects a higher educational value than to the others.

Character and disposition, so far as they are determined by education, depend on social and ethical incentives and wise discipline. Sound health, good character, and a generous disposition being secured, the extent and quality of a man's usefulness and happiness are determined (1) by the harmony of his interest and capacity with his life work, and (2) by the scope of his participation in the varied interests of life.

Important aims of education must therefore be to subject the pupil to the influence of social and ethical incentives, to render him responsive to the varied interests of life, and, as he grows older, to discover what his permanent interests and capacities really are. These aims can only be promoted by a wise use of the course of study. Before we can make such a use of the course of study we must examine the different subjects of instruction in order to ascertain, if possible, (1) the characteristic incentives and (2) the kind or kinds of power, which under good teaching (instruction and discipline) the several subjects may develop.

The subjects of instruction deal with human experience, conduct and achievement including concrete as well as mental products, and external nature ; namely:

(1) Languages and literatures; (2) history; (3) art (including music, painting, modeling, etc); (4) philosophy (elementary psychology and logic; introduction to the history and theory of education); (5) mathematics; (6) physical and biological science; (7) manual training.

Of these subjects, literature and history, and also some forms of art and portions of philosophy have an ethical content; *i. e.*, they portray, directly or by contrast, the highest ideals of achievement, "beauty, honor, duty, and love," and reveal the effect of these ideals on human aspirations and conduct. These ideals are the highest ideals of the race. When they dominate the actions of men, they usually insure the best

and most complete usefulness and happiness. The incentives growing out of these ideals are therefore higher than all others. That is to say, ethical incentives are the highest incentives.

Hence, when language and literature, history, and appropriate portions of philosophy and art develop interest, these subjects have a higher educational value than all others; for they are not only rich in possible incentives, but they embody also the highest incentives; and through interest they may develop permanent habits of thought and action in harmony with those incentives.

Without interest these subjects can have only a moderate educational value in spite of their content; for they cannot be economically employed to develop desirable habits of thought, achievement, and conduct that give promise of permanence. That is, they cannot be advantageously employed to develop usefulness and happiness. They have a moderate educational value, even without interest, because, even without interest, they may be used to develop, although wastefully, the virtues of work through urgent extraneous motives; moreover, these subjects are needed for ethical and social enlightenment. No human being should be a stranger to the highest ideals of the race, since everyone can be influenced to some extent by them. Hence, the subjects embodying these ideals have some educational value for all pupils, and all pupils should be required to give sufficient attention to them.

The other subjects named (mathematics, natural science, and manual training) either have no social or ethical content whatever, or involve social and ethical incentives, *i. e.*, incentives affecting human relations only incidentally; and mathematics is especially narrow in the range of its possible incentives: Hence, without interest, these subjects have only feeble educational value of any sort. With interest, these subjects may be advantageously used for the development of habits of efficiency, *i. e.*, of thorough and successful achievement. Such habits render their possessor useful, and usually happy; and hence the subjects which develop these habits possess an educational value dependent on the kind and degree of usefulness and hap-

piness which they develop. But as the usefulness and happiness of an individual are not of the highest order unless they are determined by the highest ideals, and as these ideals are usually not involved and are not necessarily involved at all in the pursuit of the subjects now under consideration, these subjects are, in general, inferior in educational value to those of the group first considered.

III

I have now formulated in general terms the educational values of all the subjects of instruction, and have found these values to consist in the incentives to activity and the power based on these incentives which they severally may develop. We have found the relative educational values of the several subjects to consist in the richness of the several subjects in incentives, and in the relative values of the incentives they are capable of yielding. We have found the highest incentives and the greatest variety of incentives in the group of subjects dealing with human conduct and achievement, and hence for those pupils in whom these subjects develop interest we have found that these subjects have a higher educational value than all others. It remains to apply these results to obtain an estimate of the relative educational values of the different subjects during the two stages of elementary or primary and secondary education.

The special aims of elementary education are:

(*a*) To nourish the mind of the child through the course of study which should comprise an orderly presentation of the whole field of knowledge, and to provide the opportunity for the exercise of all his powers, mental, moral, æsthetic, manual, or constructive, through good instruction and wise discipline; (*b*) To guard and promote his normal physical development.

In the earlier stages of this period there are not, of course, distinct subjects at all: there is simply the diversified field of closely correlated knowledge; and because everything is interesting and equally yields incentives to activity, it is difficult, with possibly one exception, to think of different educational

values for the different forms of activity. The one exception is the mother-tongue. This is the instrument of all the pupil's acquisitions and of common intercourse with his fellows. Moreover, it is the embodiment of rich stores of information and of the highest ideals of the race. If instruction in the mother-tongue is not limited merely to the study of its form and structure, but really serves primarily, as it should, as the means of exploring and interpreting both the world of external nature and the world of man, the mother-tongue will be richer in incentives and possess higher incentives than all other forms of knowledge; and it may therefore have a higher educational value than all other subjects.

Continuous development from the stage of early childhood covered by the period of primary or elementary education into the stage of later childhood and youth covered by the period of secondary education[1] does not involve the abandonment of these aims, nor does it alter essentially the relative importance of the mother tongue as the field of knowledge gradually diverges into distinct subjects, until the pupil arrives at the later stages of this period. On the contrary, these aims must continue to influence the pupil's education throughout the entire formative period. But they are subject to some modification. The pupil's mind must still be nourished, but it is no longer possible for him to pursue simultaneously the elements of all knowledge, when that knowledge has diverged into distinct subjects, except within certain well-defined limits. During this stage, the pupil's individuality, his own tastes and capacities emerge, as the knowledge to be acquired diverges more and more into distinct subjects.

The distinct emergence of these tastes and capacities is natural and inevitable. The clear recognition of them during the period of secondary education is important for the sake of the ultimate organization of the pupil's mental life through dominant groups of ideas. Through these dominant groups of ideas, *i. e.*, through his permanent incentives, the pupil's life

[1] Roughly speaking, this period comprises the later years of what is now the grammar school period and the whole of the high school period, and often beyond.

habits are gradually formed, and his mental life acquires the richness, stability, alertness, and vigor on which his highest usefulness and happiness depend.

The special aim of secondary education and the teacher's greatest responsibility—a responsibility not often recognized or acknowledged hitherto—therefore consist in the discovery and the special development of each pupil's dominant interests in so far as these interests represent possibilities of development in harmony with the general aim of education, and the constant use of the course of study as a means of intelligent experimentation until the pupil's self-revelation is complete. During this stage, therefore, as the pupil advances, the relative educational values of the different subjects for each pupil correspond more and more to the relative degrees of interest they develop.

It is manifest that, in the application of this principle in practice, great care must be taken that caprice or chance interests do not dissipate the pupil's powers or narrow the whole range of his development. Flexible programmes with a wide range of electives are needed, but it must be remembered that the test of real interest can only be revealed by intensiveness and continuity in the pursuit of a subject during a sufficiently long period. What that period is, the judgment of the teacher must decide in each case. But the proper application of this principle will lead to that supremely desirable, although, at present, apparently unattainable result, that each man while still a youth will learn to know his powers and defects, and will be aided to select deliberately that calling for which he is best fitted by nature. Though at present apparently unattainable, this ideal as the result of all our educational endeavor does not seem to me by any means beyond our reach. Who can doubt that we should strive to attain it?

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II

THE EDUCATIONAL VALUE OF THE ANCIENT CLASSICS

When a teacher of the classics is suddenly asked what is the educational value of Greek and Latin, he is apt to be taken aback, like an orthodox theologian who is asked to explain the value of Christianity or a professor of morals who is called on to state definitely why we ought to be good. We do not have answers ready to questions which we are never asked, as we do not build walls to guard positions which are never attacked. I do not understand that any serious attack is now made by educated men upon classical study as an important department of education. The only difference of opinion concerns the necessity of this study for all literary men: this question, however, is not before us to-day.

The claim of the classics to recognition in our systems of education is based partly on the position of the Greek and Roman literatures in the history of literature, and partly on the position of the Greek and Latin languages in the history and development of language.

The literature of Greece is a phenomenon unique in history, before which the world has stood in amazement for twenty centuries. Poetry in all its forms, history, philosophy, and oratory are there represented in masterpieces which have been models for all succeeding generations, and which still retain their original freshness and vigor undiminished, even after the lapse of ages. And this literature has the special charm that it was the spontaneous outburst of the cultivated Greek mind, which had no forerunners to imitate and no models to copy, but created, developed, and brought to perfection each form of its literature by its own unaided genius. It developed epic poetry, even before the dawn of authentic history, from simple ballads to the perfection of the *Iliad* and the *Odyssey*. This

first creation of the youthful genius of Greece was hardly complete, before the bright flower of lyric poetry suddenly burst forth in full bloom from every rock in the Ægean. The perfect lyric thus followed close upon the perfect epic, and in later times the Lesbian Sappho was styled The Poetess as Homer was known as The Poet. The Grecian lyric is best kown to us now by the odes of Pindar. But a full generation before Pindar's song was heard at Thebes, the Dorian lyric had suddenly developed on the soil of Attica the grandest form of poetry which the world has ever seen—the tragic drama. From the rudest beginnings Athens in less than a century brought the tragic art to its perfection in Æschylus, Sophocles, and Euripides, and left absolutely nothing for successors to add to it. Modern tragedy has indeed omitted (perhaps wisely) some of the greatest charms of the Attic originals, especially the choral song, which was the historic basis of the whole; but it has added nothing to their dignity or their beauty. Comedy soon followed tragedy at Athens, rising with equal brilliancy from equally small beginnings until it culminated in Aristophanes, who shared the Attic stage with Sophocles and Euripides. The same wonderful century saw the writing of history advance from simple annals to the comprehensive work of Herodotus and to the later philosophic history of Thucydides. This great historian has always stood as a model for all time of scrupulous impartiality, of untiring diligence in searching for truth, and of keen insight into the causes and the connection of events. Athens now became the home of orators of matchless eloquence, and of philosophers who propounded and discussed with subtlety and skill most of the important problems with which philosophy is still struggling with hardly better success.

We must remember that, of this wonderful mass of original literature, every department of which was stamped with the genius of the Greek race, "we possess," as Grote says, "only what has drifted ashore from the wreck of a stranded vessel"; but some law of the survival of the fittest has fortunately brought to our distant shores the choicest part of the precious

cargo. No other literature in the world contains so large a proportion of veritable masterpieces; and these masterpieces have an additional historic value as the works of men who were pioneers as well as masters in their art.

When Greece had ceased to devise new forms of literature and to carry to greater perfection her earlier inventions,—partly because no new fields were left for her to conquer,—Rome appeared upon the stage in the double character of ruler and subject, and skillfully assimilated the literary material which she found in Greece, at whose feet the conqueror soon sat as a willing pupil. By making Greek learning her own, Rome became a mighty power in letters as well as in arms. The torch of learning, kindled in Greece, now burned brightly in Rome; and Roman poets, historians, orators, and philosophers revived the true spirit of the best days of Hellas on the banks of the Tiber. The literature of Rome, which a distinguished scholar has compared to the brilliancy of the full moon following close upon a splendid sunset, apart from its native power, has done much to interpret to Western Europe the Greek originals. It kept alive in the West, though sometimes with a dim and flickering light, the spirit of scholarship and the pride of learning, during the long period while the Roman Empire, with its seat of power transferred from the Seven Hills on the Tiber to its grander throne on the Bosphorus, was cherishing the original flame of Greek learning until the day when it was to return and aid in awakening Europe from her long slumber. Since the revival of learning the Greek and Latin classics have been powerful agents in the development of the literatures of modern Europe, and no study of these literatures which leaves out their classic models can be anything but superficial. Modern literature could never have been what it is without the help of Greece and Rome; and he who undertakes to be learned in the modern while he despises the ancient as "dead and gone" is saved from mortification only by his lack of the knowledge which he needs to understand his own ignorance. If any literature was ever providentially devised to be a fitting foundation of literary culture, it would

seem to be this of the ancient classics, which so exquisitely combines the original Greek masterpieces with their Roman successors and with much that is due to the original genius of Rome herself.

But apart from the historic claims of Greek and Roman letters to this important position, the study of the classics has had a powerful influence for good by uniting scholars in a common literary interest. It is the greatest stimulus to literary activity to have a recognized body of literature which is the common possession of all scholars, with which all are familiar, whose masterpieces are accepted by all as models, and which upholds a high universal standard of literary taste; in short, which is recognized as classic. There is a contagion which comes from such a community of interest which is wanting when scholars are working in many different fields with no bond of union. This acknowledgment of the authority of certain works of genius in matters of taste, especially when they are products of a distant age, cannot hinder the free development of literature on modern lines and with modern views, any more than the universal respect paid to the masterpieces of ancient art fetters the genius of modern sculptors. Good taste is not confined to any age or to any department of letters or art; and he who has cultivated it in one line will seldom forget it in another.

It may be asked whether all this ancient literature is not accessible to students in modern translations. It is thus accessible to ordinary people in a certain sense, but not to scholars. A piece of literature is not a mere expression of certain ideas. It consists of form as well as of matter. A masterpiece of literature consists of good thoughts expressed in a masterly style by a master of language. In a translation this form is lost. If the translator is himself a master of language, his genius may substitute a new form for that which is gone, possibly one of equal or even superior merit; but it is not that in which the author clothed his thoughts. Pope's *Iliad* has perhaps done as much to make the name of Homer known in England as the *Iliad* itself; but nobody ever learned

to know the *Iliad* through Pope, though many have learned from him what gave them genuine literary pleasure. But who ever really studies a literature as a scholar through translations? The very knowledge that he is studying one man's thoughts in another man's language is enough to deter a true scholar from calling this literary study. When a whole literature is relegated to this limbo, its doom as an independent power in the world of letters is already decreed. Freeman, in an Oxford lecture on history, well says: "We master the tongue of Hellas as being in itself the first and noblest form of the common speech; as the tongue which, in its native and unborrowed strength, brought forth the greatest masterpieces of every form of lettered utterance—those masterpieces which none can know save those who can follow the very words of the poet, the orator, the philosopher himself, and who are not at the mercy of some blind guide who vainly strives to reproduce those living words in ruder tongues."

Apart from the Greek and Latin literatures, the languages of Greece and Rome are important, nay, essential, elements in the study of language. No cultivated man, however well he may speak or write by habit or by instinct, can afford to neglect the principles which govern the use of language and determine what is good and what is bad in form or expression. Apart from a few idiomatic expressions which use has consecrated, and which we all agree to use whether we see a principle in them or not, the structure of every language depends on fixed principles which may be definitely stated and learned. Many of these are universal principles of all languages, at least of all belonging to the same family. Now it is next to impossible to make many of these principles clear by means of languages which are so poor in forms of inflections as most modern languages, especially English. A slight comparison of the English and the Greek verb will illustrate this. The English must often use the same verbal form in many different senses, in which the Greek would use different forms. To give a single example—the Greek verb *ποιέω, do*, can be used in thirteen different forms (the present and aorist indicative,

subjunctive, optative, infinitive, and participle; the imperfect and future indicative; and the future optative), each expressing some distinction (often a slight or subtle distinction) of meaning or construction; and in all these forms it can be translated correctly and naturally by the English *did*. I do not think I could explain these various uses of *did* clearly and satisfactorily without the help of the Greek. And I am sure that it would aid anyone's linguistic knowledge, or at least make keener his linguistic sense, to see the nice distinctions which the Greek can express by these various forms, the different circumstances under which each can or cannot be used, or the different point of view which each represents. Such considerations are not mere puzzles; they show the English scholar that he must study the history even of a common word that he uses every day, before he can be quite sure that he always uses it correctly and in the precise meaning that he has in mind. It would be useless to multiply examples of cases in which the ancient languages, with their copious inflections and their exact forms of expression, are potent helps to an understanding of modern languages; and, moreover, it is impossible for one to appreciate these helps fully who does not already understand the subtleties of expression of which the classic tongues are capable. It by no means follows that English cannot express every idea as clearly and as exactly as the Greek, provided the English writer knows how to do it; but the Greek will teach him how to do it in many cases where the English alone would sadly puzzle him. A scholar here must not go right merely by habit or knack; he must know why he is right, and he must be able to go right again and to show another the right way and the reason for it.

The abuse or misuse of grammar in elementary classical study has exposed the linguistic claims of the classics to deserved reproach; and the reproach has not ceased with the cessation of its cause. When it was thought that the best introduction to the study of Latin was to give a boy a large Latin grammar to commit to memory before it could be understood, it was justly said that the end was sacrificed to

the means. Now a more rational system limits the parts of grammar which are to be learned by rote to the important forms of the language and its essential principles of construction, leaving the details and all the nicer subtleties until the pupil meets them in his reading and really feels the need of explanation. The essential thing is that the classical student shall ultimately appreciate, so far as his powers allow, the full power of the classic tongues to express thought clearly and precisely. Especially, the study of Greek syntax, rationally pursued, gives the scholar an insight into the process of thought and the manner of expression of a highly cultivated people; and while it stimulates his own powers of thought, it teaches him habits of careful expression by making him familiar with many forms of statement more precise than those to which he is accustomed in his own language. The Greek syntax, as it was developed and refined by the Athenians, is a most important chapter in the history of thought, and even those whose classical studies are limited to the rudiments cannot afford to neglect it entirely.

The value of the classics in education has been immensely increased in these later days by the wealth of illustration which now brings Greece and Rome before the eyes of the student and makes him feel that they are not dead, but living and breathing realities. The photographic art has worked a revolution in many departments of classical study; indeed, it has made many forms of classical study for the first time possible. I shall never forget what a revelation came to me when at the age of twenty I first saw a "sun-picture" (as it was called) of the Parthenon, which was brought to this country by my old teacher in Greek, Arthur Hugh Clough, the poet. The schools established in Athens and Rome for the study of classic art and literature are every year bringing more and more classical students face to face with the inspiring scenes of Greece and Italy. These schools offer their privileges (privileges which a short time ago could not be bought for money) to competent students with generous freedom; and the munificence of governments and of enlightened friends of learning supplies

many with the necessary means of enjoying them. The increasing number of classical teachers in this country, and in England, France, and Germany, who thus have a living acquaintance with classic lands is a sign that classical study is to be less and less a delving among the dead bones of ancient sepulchres. The poet's prophecy is now fulfilled in a sense of which he little dreamed:

> "Yet to the remnants of thy splendor past
> Shall pilgrims pensive, but unwearied, throng;
> Long shall the voyager, with the Ionian blast,
> Hail the bright clime of battle and of song;
> Long shall thine annals and immortal tongue
> Fill with thy fame the youth of many a shore;
> Boast of the aged! lesson of the young!
> Which sages venerate and bards adore,
> As Pallas and the Muse unveil their awful lore."

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III

THE EDUCATIONAL VALUE OF THE HISTORY OF THE FINE ARTS

In the memorable address delivered in 1867 by John Stuart Mill, as rector of the University of St. Andrews, after a wide survey of the intellectual and moral education which the system of schools and universities is intended to promote—Mill went on to speak of a third division of human culture, "not less needful," he said, "to the completeness of the human being," "the culture which comes through poetry and art, and may be described as the education of the feelings, and the cultivation of the beautiful." And this, he declared, "deserves to be regarded in a far more serious light than is the custom in these countries," that is, in Great Britain. He went on to describe in clear and weighty words the nature and the importance of this branch of culture; words all the more weighty because his own life had been mainly devoted to interests of a different order, so that he spoke in regard to the significance of the arts in education with the authority of one who recognized it from an external standpoint, and without such prejudice in their favor as might have had its source in special æsthetic studies. To English hearers his words were as novel as they were weighty. Nowhere in English-speaking lands had culture in the arts been admitted as an essential portion of education. They had been regarded as of trivial concern; the study of them had been relegated to professional artists or to mere dilettanti, and the idea that a complete and satisfactory education could not be obtained without some knowledge of their character and history, and without such culture of the æsthetic faculties as the study of them might afford, appeared strange and unacceptable to many even of the most enlightened thinkers on the subject of the education of youth.

XIIM

It was about seven years after the delivery of Mill's address that the chair of the history of art which I have the honor to occupy was established at Harvard, and, so far as I know, it was the first of its kind in our country. By its establishment this great branch of the humanities was recognized as having an equal position in the scheme of college or university studies with the other branches, and as needful a function as any of them in the work of education. It was a noticeable step in educational progress. But although in the last twenty or thirty years there has been a considerable advance in the recognition of the importance of æsthetic studies, so that such words as Mill's would no longer seem as novel as when he uttered them, this recognition is even yet by no means general, and in the curriculum of most of the higher institutions of learning in America and in England no place is given to that instruction which has for its end the cultivation of the imagination and the sentiments, through the refining of the perceptions and the quickening of the love of beauty.

A very recent instance is to the point. Since 1891 the college teachers in Iowa have been engaged in the attempt to define practically the term "College," and in 1893 a report was made by a committee as to what was required in an institution before this term could be properly applied to it. Among other requirements the committee reported that it should have a faculty of instruction of at least eight chairs, as follows (I alter the arrangement of the Report): 1. Psychology and ethics; 2. biological science; 3. mathematics and astronomy; 4. physics and chemistry; 5. English language and literature; 6. modern languages; 7. ancient languages; 8. history and political science. Here, it will be observed, is no attempt to include any instruction in the field in which man has displayed his highest powers, and given the fullest expression to his ideals.

This general failure to recognize the importance of the study of the arts, not in a technical and professional sense, but as the means for culture of those faculties to which all others are subordinate is perhaps not surprising to one who is acquainted

with the history of education, and is aware of the fact that a comprehensive, philosophic scheme of education nowhere exists in practice. We are slowly and painfully, and with no great success as yet, endeavoring to work out such a scheme. In every advance toward it the educational importance of the fine arts becomes more and more apparent. I do not speak here of technical education in the fine arts,—that does not belong to general education,—but of knowledge of the history and principles of those arts, by which men give expression to their highest selves.

Let me define a little: all the fine arts are arts of expression, all are addressed to the eye or the ear; all are endeavors after expression in beautiful or impressive modes; all have for their end the awakening of sentiment or emotion, and all have their origin in the imagination of the artist, deriving from it those forces by which they appeal to the imagination of the spectator or the hearer. The imagination is the source of the poetic faculty, and every work of the fine arts is the work of the poet, the maker—the creator, in that limited but true sense in which the faculty of creation may be ascribed to man. Moreover, the imagination is the source not only of the poetic faculty, but of the sentiments by which man is ennobled and civilized. It quickens and enlarges his sympathies, it interprets the teachings of experience, and it shapes the fleeting and delusive shows of things into permanent forms of beauty accommodated to the ideals of mind, the attainment and enjoyment of which is the true end of life.

Now, it is through the study and knowledge of the works of the fine arts, quite apart from the empirical practice of any of them, that the imagination, the supreme faculty of human nature, is mainly to be cultivated; for it is by these arts that the poetic creations of the imagination are embodied, and that the efforts of the creative genius of the finest spirits of successive generations of men to express itself are transmitted as standards of achievement for example and inspiration. And nowhere are such study and knowledge more

needed than in America, for nowhere in the civilized world are the practical concerns of life more engrossing; nowhere are the conditions of life more prosaic; nowhere is the poetic spirit less evident, and the love of beauty less diffused. The concern for beauty, as the highest end of work, and as the noblest expression of life, hardly exists among us, and forms no part of our character as a nation. The fact is lamentable, for it is in the expression of its ideals by means of the arts which render those ideals in the forms of beauty, that the position of a people in the advance of civilization is ultimately determined. The absence of the love of beauty is an indication of a lack of the highest intellectual quality, but it is also no less an indication of the lack of the highest moral dispositions. For, as Goethe says with truth, the Beautiful is greater than the Good, because—I cite again from Mill—"it includes the good, adds something to it; it is the good made perfect."

Now, if this be recognized and admitted, it is plain that there can be nothing of greater importance in education than the culture of the love of beauty, and this culture can be promoted in no other way so well as by that study which deals with the creations of the imagination; in a word, by the study of poetry, not only in literature, but in every art whose works are an expression of the poetic impulse and faculty.

Not one of our institutions of learning has yet recognized the full importance of beauty, and the necessity of its culture not merely in the lecture room and the closet, but by the means of the outward forms of the school or the university itself, in its ceremonies, in its buildings, in everything within its compass which shall meet the eyes of the students committed to its charge. Here, at Harvard, the university which sets an example and a rule in many ways to every other institution of learning in the United States, the neglect in regard to this essential feature of education is deplorable and discreditable. To take but a single illustration: the ugliness of most of the buildings erected during the last twenty-five years; the defects either in proportion, position, or ornament of every one of them; the disregard of noble architectural effects to be

obtained by the proper relation and combination of the various edifices, have produced a result of which the evil influence will be felt for centuries. A great opportunity for giving such aspect and form to the university that its beauty should operate, with often unconscious but yet unquestioned power, upon the character of the Harvard students for an indefinite succession of generations, has been worse than lost. A great educational influence has been perverted. And there was no need thus to waste it. Nothing has been saved, nothing has been gained by the waste. And this grave misfortune is due to the lack of concern for beauty, and the lack of knowledge of the fine arts, not only among those directly responsible for the buildings, but among the community of which they are the representatives.

The study of the fine arts can be pursued in America only under serious disadvantages. Few examples of their work which might serve as standards for emulation, or which might foster the imaginative faculty, have been produced here. In the absence of national feeling for art, and in the prevalence of conditions which hinder the growth of desire for expression by means of them, such instruction as can be given in their history and principles must, of necessity, be hampered by the incapacity of the students to recognize its value through any personal experience, or through responsive sentiment potentially existing, but not yet called into activity in their own minds. Such instruction as it may be in our power to give should, of course, be primarily directed to quicken the poetic imagination; and this may begin very early with the effort to inspire in the pupils a love of poetic literature. The child who shall have learned to care for simple poetry in verse, the youth who shall have been taught to appreciate more or less fully the beauty in Shakspere or in any one of the splendid succession of the greater English poets, will have had his perceptions and his imagination roused to a degree which will enable him in some measure to feel the significance of the beauty embodied in the proportions of the Greek temple, in the forms of Athenian or Florentine sculpture, in the design of

the Gothic cathedral, in the color of Venice, in the melody of Mozart, in the symphony of Beethoven. If he can be taught to recognize and to feel the true significance of these things, he will have been taught the lesson of shaping his own work, whatever it may be, into the most perfect form which his imagination can conceive for it; and in thus shaping his work, he will be shaping his own character and life, learning to make them beautiful, and thus to bring them into conformity with the ideal of his mind.

I have not exaggerated the educational importance of the study of the fine arts. I am confident that, however unprepared the community may be to accept it as correct, reflection upon the subject will not lead to dissent from the proposition that our scheme of education is essentially defective so long as it fails to include the culture of the imagination as one of its chief ends, and the study of the fine arts, or, in other words, the study of poetic expression in all its forms, as the chief means for the accomplishment of this end.

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IV

THE EDUCATIONAL VALUE OF MATHEMATICS

However real the educational values of mathematics may be, they are many-sided, variable, elusive things. In the first place, they have no existence apart from the student of the subject. Those eternal relations of quantities the discovered portions of which make up the body of mathematical science exist, indeed, apart from the human mind. But we cannot conceive of mathematics as having educational values except as we think (1) of the worth of the interplay between the mind and such sections of mathematical science as it may deal with, and (2) of the serviceableness of the knowledge thus gained.

As to the quantity needed for serviceableness, what would be ample for a society belle or a grocer's clerk would be meager for a Radcliffe girl or a civil engineer. And when it comes to settling the precise mental values of the interplay spoken of, a kind of mental chemistry begins to work that quite confounds our theorizing, and forbids our predicting with entire certainty the qualities of the product from the known things that contribute to it. It makes us a little less dogmatic, if we look upon an educational value as binary, as something different from what subjects and methods of teaching on the one hand and the dimly seen data of heredity and environment on the other would lead us to expect, but a curious compounding of both, a value to be determined, so far as such a subtle thing can be studied, by experiment rather than by speculation.

For one, I am glad we cannot express either quantitatively or qualitatively the precise educational value of any study. I rejoice in the ever receding bounds, in the never withdrawn challenge, in the always present mystery, of an educational value. It is well to walk by sight, at least in part, but there

are sides of our nature that would be left fallow if we did not also walk to some extent by faith.

Still, mathematics is a recognized subject of study. It has its place, the enlightened world over, in the curriculums of all grades of schools from the primary to the college; and it is, therefore, pertinent to inquire what its values are, even if it is impossible fully to define their quality or to measure their quantity.

In this discussion I will limit myself to those lower branches of mathematics that are taught in our public schools—arithmetic, algebra, geometry, and trigonometry.

There is, first of all, the conventional value, that which arises because it is customary for all but the illiterate to have some acquaintance with mathematics. This conventional value holds some relation to the real usefulness of mathematics, but not necessarily a close one. A kind of conservatism often keeps a conventional value alive after the usefulness which created it is gone. This value is one thing for the masses, a higher thing for those who would become physicists, engineers, and the like. And the conventions of any particular class are themselves fluctuating; for, if we compare modern text-books in arithmetic with old ones, we find many subjects and methods once thought indispensable now altogether abandoned. I see no signs, for instance, of those grindstone, circular-farm, or conical-haystack problems that some of us used to wrestle with when we were boys. The sanity of the teacher who to-day should require of a pupil the solution of Greenleaf's problem of the seventy-two brilliants would be sharply questioned.

The direct utilitarian value of arithmetic—its value to the breadwinner—has been much overestimated; or, perhaps, it is nearer the truth to say that, while accuracy and speed in simple fundamental processes have been underestimated, the value of presenting numerous and varied themes in pure arithmetic, and of pressing each to great and difficult lengths, has been seriously overrated. When the curriculum was limited to the three R's, it was inevitable that that R which

lent itself most readily to purposes of mental discipline should be worked unduly. The extremes to which arithmetic as a pure science has been pushed in our schools, to the joy of some and the grief of more, is really a sharp reflection upon the system that permitted such disproportionate extension.

Arithmetic, as a separate elementary branch, may well be put aside when the pupil has learned to add, to subtract, to multiply, to divide, and to perform these operations both with integers and with common and decimal fractions; provided there are added simple cases under denominate numbers and easy applications of percentage and proportion.

The utilitarian value of geometry as a subject for the elementary schools has not been sufficiently appreciated. Formal geometry is out of place, of course, for young children; but geometry that involves the judgments of the eye, the discernment of relations, short steps with the reason, the use of instruments, the play of the inventive and constructive faculties, and all that, is admirably suited to childhood, and, like arithmetic, has a high utilitarian value in that its elementary facts enter so universally into industrial pursuits.

I need to say here, what will be brought out later, that it is impossible to extract even low utilitarian values from arithmetic and geometry without, at the same time, using these branches for some measure of discipline and culture. And the same statement holds good when we come to that higher grade of utility which we find in the associative use of mathematics, that use in which we employ mathematics to give definiteness and precision to ideas of quantity in such studies as geography, botany, physics, chemistry, astronomy, and even history. These studies all abound in propositions that do not readily reveal their full meaning until they are mathematically conceived. So long as this meaning lies buried in them, they are barren of value.

Take, for example, the law of definite proportions in chemistry, that a given chemical substance always contains the same elements in the same proportions. It is not until the pupil grasps the thought that in one pound of water, for

instance, we have one-ninth of a pound of hydrogen and eight-ninths of a pound of oxygen, that this ratio of one to eight is found in water from the molecule to the ocean, and so on, that the law begins to have full meaning for him. And so for all statements that admit of mathematical illustration and expression.

This associative or correlated use of mathematics looks two ways at once. There is, on the one hand, the increase of skill gained in using the instrument in its application; and, on the other hand, there is the service rendered by such use in revealing more clearly the exact content of what is affirmed. Moreover, when two principles, one from natural science and the other from mathematics, are welded together in this mutually helpful way, the mind's chances of summoning either into consciousness are much enhanced. In other words, the mind's mastery of such possessions for instant use is strengthened.

When a principle of physics is mathematically expressed, we may by pure manipulation arrive at conclusions difficult to reach in any other way or, in the case of intricate formulæ, impossible to reach in any other way. Herbart is right when he says, "By mathematics, scientific accuracy is gained for the fundamental ideas." He might have added, and still have kept within the confines of truth, that there are science highways that would be closed to travel without mathematics.

Thus far, I have touched (1) the conventional value of mathematics, which may or may not be the same with the utilitarian value, (2) the utilitarian value, and (3) the associative value, or that which mathematics has because of the service it renders in the study of other subjects. These are largely, but not wholly, what may be called the instrumental values of mathematics.

We set them apart from the culture values, indeed, in order that we may fix our mental gaze upon them, and yet they cannot, however humble, be really divorced from these culture values. These latter might be considered in connection with

the training mathematics gives to the senses, the memory, the imagination, to the mind's power of conceiving, judging, and reasoning; and even with the pleasurable activity mathematics may excite in the emotional nature. Without venturing into much detail, I may say that arithmetic and geometry, which should run parallel with each other from the lowest grades, have no mean value in the training of the observing powers. Of course, I refer now to objective arithmetic and geometry—to these studies in their simple, natural, and close connections with objects of study that appeal to children, such as plants and animals, the phenomena of nature, etc. There are innumerable facts of line, form, size, number, distance, surface, contents, weight, etc., about such objects; and they are admirably fitted to incite something more than mere looking at things. Indeed, the only observation that is really developing is that which provokes thought; this thought, in turn, leading to still closer observation. The interest aroused in children by an object extends to quantitative facts about it as well as to its color, sound, use, or beauty; and so long as the study of number, size, and form is correlated with interesting things, there may be said to be sense-perception culture in the study of arithmetic and geometry. In other words, I see no reason why we may not in any observational work distribute the varieties of mental activity it excites, such as noting, estimating, comparing, judging, and constructing, among numerous subjects in a curriculum, not omitting arithmetic and geometry, and this is equivalent to saying that these two subjects have an observational value.

When children, following their bent, enter the realm of form and number with their little thoughts, and are skillfully led from step to step in delightful association with things they like, they may gradually part company with things obtrusively concrete and enter the realm of the abstract. Thus mathematics as an applied branch gradually gives way to mathematics as a pure branch, and the interest excited by the one gradually passes over by a kind of enticement to the other. One great purpose of school training is to strengthen power

in this field of the abstract. The attainment of such power means graduation from leading strings; it means emancipation from the thraldom of matter; it means the pluming of wings for flights of which the birds know nothing. Life in the senses does not, indeed, come to an end, but a new life is opened in the world of thought. Mathematics is a means—not the only one, of course, but a valuable means—of exploitation in the realms of the abstract. This is particularly true when that pure arithmetic which follows the applied gives place to universal arithmetic or algebra; and when objective geometry gives place to a geometry divorced from things—a geometry that has a house of its own not built with hands, but reared in an airy way from unsubstantial axioms and definitions. Here, as in the lower stages of objective mathematics, little can be accomplished without interest; but if the methods of work accord with the laws of mental growth in the individual, interest is pretty sure to be kindled and to feed its own fires.

Man is pre-eminently a creature of reason; and his reasoning usually runs in one or the other of two principal channels—the one inductive, the other deductive, as when (1) he rises from particulars to the general, and as when (2) he descends from the general to particulars. A complete training recognizes both sorts. The good reasoner is as anxious to establish sound premises as to extract from them their contents; he is equally sound in synthesis and in analysis. It is idle to say, however, that excellence in either necessarily carries high attainment in the other, since in inductive reasoning there are various grades of confidence in the conclusions that may be reached, while in deductive reasoning, if the pitfalls are avoided, there is certainty in the conclusions. The former requires the gathering of data from the world and under difficulties; the latter may be complete in the solitude of the mind.

Now, in mathematics, and especially in formal geometry, we have the best possible arena for training in deductive reasoning. I know the modern debt of physical science to inductive methods. I am aware that deductive reasoning did not

become fruitful in outward results until it was tied down to premises carefully worked out and established. There was never a time, however, when it was not fruitful in mental acumen. No one has ever doubted the intellectual keenness of the mediæval schoolmen. Such wretched data as they had they used most skillfully. They whetted their minds well, if they did not add to the world's store. The pupil needs to be trained to inductive methods, indeed, and he may receive such training in the physical sciences, and even in the beginnings of mathematics, but he needs to be trained in deductive methods as well. Deductive reasoning, moreover, is a necessity in certain stages of inductive reasoning. The two sorts supplement each other. The value of each is enhanced by the other. While it does not follow, as I have already admitted, that excellence in either assures excellence in the other, I have noticed that when the writers on logic deal with either, their treatment of it seems to be general; that is to say, the laws and fallacies of either kind, once given, seem to have a bearing upon and a value for all phases and applications of that kind.

Is the power gained in mathematics a general store upon which the mind, in its varied exercise, may draw? To a certain extent, I think it is. Mathematics is one of the virile studies. It is not grateful to weaklings. It yields scant results to half-hearted, desultory attacks. It lays a tax on the mind; it insists on progressive and sustained effort; it demands closeness of attention and concentration of energy. The mind that bears up under the steadily increasing tension of such work grows in a kind of all-round mental strength that is always available when close, concentrated, persistent, desperate mental work is wanted. Such mental robustness is analogous to that all-round physical vigor which, though it does not permit the instant transfer to a new line of work of that expertness which has been attained in an old line, nevertheless serves as a well-stored reservoir of energy for any physical drafts upon it. This is not an argument for the study of Choctaw or whatever taxes the mind without reference to its

content or substance. I would not use it for mathematics if I did not have faith in the other values of mathematics.

All that I have to say about educational values is conditioned upon sound methods of instruction and study—methods that capture the interest, supply the will with motives, enlist the reasoning powers, favor original thought, and put the student on his intellectual mettle. The methods need to be so graded as to give the student the consciousness of power. This consciousness is a pleasurable state for him. And such pleasure is one of the great determining influences behind the will. Pleasures impel and pains inhibit, and their power is tremendous, especially in the young. Hence the stress placed on exciting interest in children and relying on this interest until a goodly company of high determining motives can be assembled about it, to re-enforce it or take its place if it should ever retire from the field.

Now one peculiar advantage of right mathematical work lies in the completeness and accuracy of the results attainable. Most kinds of study are like woman's work—they are never done. There is a rawness and lack of finish about them as in in a schoolboy's composition. I am not underrating the value of study in English, in history, or in any of the vast, indefinite, and never-to-be-compassed fields. I am simply saying that the demonstration of a theorem in geometry, for instance, may be brought to a kind of finish and completeness impossible in a paragraph about the character of Henry VIII or the causes of the Civil War, and that the student enjoys a unique consciousness of power in mathematics when he brings á piece of work to a triumphant end. Interest is a natural companion of such consciousness of power. Such interest has enduring qualities. Mathematics is peculiarly rich in challenge and incentive to try conclusions with things, and in opportunities for complete and indisputable victories. I have noticed that when boys and girls in geometry, for instance, become once imbued with a thinking, investigating, inventive spirit, and with that conception of a proof which gives the child who has it confidence to stand against the world, the

subject has a peculiar fascination for them. They work with enthusiasm; the real student glow is there; the inspiration continues operative away from the special influence of the classroom; and the emotional excitement of the "Eureka," when the way has been discovered, is hardly equaled in any other student experience. These results, however, are grapes of Eshcol in the Promised Land. It is a land which some never reach, but which more might enter if mathematics could be more wisely taught. My Bowdoin professor, William Smyth, fairly reveled in his explorations there. He was a living demonstration of the possibility of the union of mathematical study with a passionate glow. He fondled his calculus as a mother her child, only his terms of endearment for it were in a more exalted rhetoric, for he was wont to use such epithets as "astonishing," "superb," "sublime."

Of course, mathematical studies do not and cannot energize all forms of mental action equally, but they cannot be neglected without depriving the mind of a means of training which no other subject can make good. Such studies in conjunction with physical science make up an indispensable half of the shield of intellectual training.

It should be noted, before I leave my theme, that mathematical study gives fine facilities for the close and accurate wedding of the language to the thought in the sentence, and of thought to thought in the paragraph. The conception thus acquired of the use of language is a precious one to carry into all written work. I am impressed with John Fiske's remark about the scholarly Taine, that he received precisely that training that a literary man needs, namely, that which comes from the study of mathematics and the physical sciences.

Such values of mathematical study as I have touched may be summed up as follows:

1. A conventional value that ranks with the value of reading or writing, or any other subject commonly regarded as indispensable—a value with or without the element of utility.

2. A simple utilitarian value so great as to forbid the removal of mathematics from any curriculum.

3. An associative value that cannot be spared in a liberal education, particularly in science training.

4. A pronounced value, in objective forms of study, for sense-perception culture, with accompanying values in the elements of thought-culture.

5. An unsurpassed value as a means for training in formal deductive reasoning.

6. A disciplinary value because of the special seriousness of its drafts on the mind's power of attention, concentration, and persistence of effort.

7. A unique value in the facilities it offers for bringing things to a head and finish, and giving that consciousness of power over difficulties that quickens the soul and spurs to higher endeavor.

8. An interesting value in affording special practice facilities for such accurate adaptations of language to thought as young people can appreciate.

I do not profess to give all the educational values of mathematics, since the individual is a potent and variable factor in them. Nor do I attempt the audacious task of applying a marking system to such values as I touch to show by percentages or otherwise their relations to one another, or how they compare with corresponding kinds of value for other subjects. Moreover, I desire to recognize and guard against that seeming exaggeration of values which is due to an attempt to isolate them and to consider them one by one. In reality, they are all woven inextricably together among themselves and with other values, each value modifying and toning every other in ways whose special consideration belongs, I suppose, to the study of what is known as apperception.

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V

THE EDUCATIONAL VALUE OF HISTORY

My subject sets its own standard of value—it is "power to educate": the question put me is virtually, "What is the power of history to educate?" To answer it I must know what education is and what history is. My paper therefore divides itself into three parts: an analysis of the nature of education; an analysis of the nature of history; the discovery of the ratio between them.

EDUCATION—What is Education? A drawing forth of the nature of man. We are no wiser. The statement is too general. The specific elements of the nature of man must be understood before we can get a practical answer to our question.

I should be untrue to the necessities of thought if I did not once more call your attention to the inevitableness with which every discussion of educational import, not wholly superficial, resolves itself finally into a philosophical discussion. Philosophy is the rock upon which education is founded; and the true educator must pierce to its depths. Perhaps you will let me put before you dogmatically a formula which sums up in practical shape the results of my own years of study of the nature of the Ego: "Man is the activity of relating the ideal and the real; education in general is the development of man's powers to frame a noble ideal of life and to realize this ideal."

What sort of ideals must man frame? The individual seeks first self-preservation, but he is not an absolute; he stands in necessary relations; his nature is organic, and he is only a part of a larger whole: it is impossible to conceive one man alone. Hence man's ideal of life is of necessity the ideal of a self-preserving organism; he sees as his ideal a multi-

tude of individuals welded together in a great organic whole, where the preservation of the individuals, in the entirety of their actual and potential natures, as far as is reciprocally possible, is insured by the strength of the whole; and where the preservation of the whole is insured by the subordination of each individual to its organic laws. In other words, man's nature is such that his highest ideal is, of necessity, the ideal of a state, whether the state take the form of a Kingdom of Ends, the Kingdom of Heaven, or a world-federation of republics; the loftiest conception of which the human mind is capable, and one to which it is irresistibly driven by its own nature, is the conception of a state.

What powers are involved in this conception? Obviously the powers which distinguish the relations that should obtain among men, and which we group under the name "ethical intelligence." Ethical intelligence is reason, but reason exercised in a special field, the field of the moral relations. It perceives, through obedience to the laws of thought, that the many are "made perfect in One," that the well-being of each depends upon the well-being of all, since we are members of an organism. After this fundamental truth has been comprehended, it seeks to discover exactly what relations are organic, to grasp the real significance of each member, its proportionate importance in the total, to harmonize the multitude of diverse values in a righteously adjusted whole. Ethical intelligence, which is a divinely necessary selfishness, since the Ego can never transcend Self to find an Other, is the first condition of self-preservation, hence is the primal need of man.

Secondly: man's nature is organic, not only in that the existence of one man involves the existence of other men, but in that each man is a highly differentiated complex of activities. This complex, for the sake of convenience, we divide into the functions of feeling, knowing, willing. Man's ideal of life demands from each individual thorough organization of these functions that they may strengthen one another and all tend to one end. Hence man's nature obliges the ideal of the state which he frames to contain, as its ideal members, men,

each one of whom understands and controls his own nature, and develops it in its own special direction. This individualization of life, which is the latest and richest result of civilization, is of the highest importance, for the fullness of the life of the organism depends upon the distinct specification of its members. It demands, as its condition, psychological insight; hence the psychological powers, or reason in a new field, must work at man's common task.

Thirdly: organization, whether of state or of individual, is possible only where the universality of law obtains; hence each individual must be able to recognize law as law, *i. e.*, to discern the essential of law—universality, freedom from self-contradiction, exclusion of every self-destructive principle. This work is done by the logical faculties, or by reason in a third field.

Fourthly: the ideal of life, which it is a part of man's common task to evolve, begins to take shape before us. But in our analysis we have as yet neglected the central fact of man as a conscious being—the central fact which shapes the human world and directs its activity: there is no universal consciousness: man's ideal is not framed by one absolute mind; it takes shape first in the individual mind, where it is of necessity partial and incomplete, and in so far wrong; it can be made right only by being corrected and supplemented by all other ideals. Such modification involves each man's getting the points of view of the rest of the world; this getting we call study: study is the effort of the individual to learn the conceptions, the ideals, the points of view of other individuals, that he may make possible the interaction and rationalization of all ideals. Such acquisition of knowledge demands the exercise of man's acquisitive powers, or reason in a fourth field.

Fifthly: this composite ideal, shaped in conscious obedience to law, of a multitude of thoroughly organized lives welded into an organic whole, man is to make real. The making real of a clearly seen ideal depends upon the Good Will. But the Good Will, if we are free-will beings, no other can strengthen, no education can foster. The free-will, in so far as it is free,

is uninfluenced; in so far as it is influenced, is not free; it is the matter solely of the individual, because it is his individuality. Hence the development of the Good Will has no place in a system of education.

It follows from this analysis of man's common task—the development and real-making of a noble ideal of life—that the special powers, subject to education, which he needs in its accomplishment, are the ethical, the logical, the psychological, the acquisitive. In every human being these powers must be primarily trained, and the community must make such training compulsory, for its own preservation is involved therein. Such training is general education. The training of the powers needed for the particular tasks of private life may be left to the self-interest of each.

HISTORY—My second question is, "What is the nature of history?" The answer to this question is of the utmost importance, for there is an almost total misconception of the pedagogical nature of history. This misconception lies at the root of the complaint of teachers that history has no educational value, and allows them to substitute complacently for the true teaching of history simple quackery, *i. e.*, to do work which requires scientific knowledge with the equipment of a mere empiric.

History is the record of life: as the record of life it must reckon with the two sides of life; it, too, has the region of the ideal and the region of the real, and in history, as in the world it mirrors, the true struggle and the determining issue are found in the ideal.

In this region of the ideal lie those systems of thought which man has developed in his attempts to rationalize his activity in doing his common task. These systems naturally build themselves upon the different fields of his work: the one which seeks to put before the mind a consistent view of what the state should be, that the nature of man may find adequate expression, we call political philosophy; the one which, after classifying man's practical efforts to realize his ideal of state, aims to ascertain their causal relations and to

frame laws for the regulation of political life, is political science; the one which seeks to discover the relations that reason establishes between men in private life, is ethics, while that which concerns itself with public conduct is jurisprudence; the one which attempts an exposition of principles underlying and controlling industrial organization, is political economy; that which disentangles the laws of self is psychology, and that which seeks the laws to which social phenomena conform is sociology.

The real side of history is, of course, the concrete facts in which these theoretical studies find their illustration, and the true teacher uses them only for such purpose. The facts of life are the substance that the mind relates; recorded facts are raw material for analysis, classification, arangement in causal sequence, deduction, etc.; they exist to be judged and related, and have value only in proportion to the thought wrought into them; as mere facts they are mere lumber—worse than useless, for they impede activity. The real is always the concrete manifestation of the ideal, its shadow, its image; and its worth for man is measured by his recognition of the truth which it bodies forth.

History, then, is, in its essential nature, a group of theoretical studies and a collection of facts in which these studies find illustration. Not till this truth has been recognized, and the study of history put upon a basis commensurate with its dignity as the record of life, can it have the efficacy in education of which it is capable. Not till the teacher is trained by wrestling with the world-problems can the educational value of history be felt in our schools. Only the thinker can teach to think.

If such be the nature of history, it needs no arguments to prove that its study gives that development to the powers of man which general education demands. The practical question which meets us is what specific means shall the teacher of history take in the schoolroom to effect this development and thereby demonstrate the educational value of history.

Every day's lesson must be ordered with a view to the train-

ing of the powers in question. We begin with the acquisitive: the pupil is to be taught through the study of history how to use his powers intelligently to get knowledge in general, how to master materials presented to him and make them his personal possession. The most accessible materials which history offers are books and contemporary life. These present themselves to the student *en bloc*. To grasp their contents he must analzye them, discriminate the comparative importance of their elements, discover the causal connection of these elements, and synthesize them into a significant whole. Hence the study of history must be so ordered as to exercise upon books and contemporary life the powers of analysis, discriminative judgment, and synthesis. My method of teaching my pupils to use books is as follows:

For the history lesson a subject is assigned, certain books are indicated, the pupils are required to prepare as their lesson a topical analysis of the subject which shall show at a glance its essential points, the comparative importance of these points, their logical sequence, and their specific content. In the recitation hour one pupil is sent to the board to put upon it his analysis; the class is consulted at every step as to the judgment he shows: the large topics are keenly scrutinized and a vigorous effort is made to discover in them a common element that we may include two or more in one—"to boil down" our analysis is our constant effort, and he who sees the synthetic link which unites several particulars wins the triumph of the hour. This seeking similarity in the midst of diversity is the very essence of thought; we use the facts in the chapter as material for hard thinking; we are constantly busied with relations; this effort leads to sharp criticism of the logical order of any analysis offered, and the pupils are encouraged to scrutinize severely what the teacher may suggest. Written discussions of problems which present themselves, and written comparisons of epochs and lines of policy are demanded.

I cannot dwell too strongly upon the educational value of this constant exercise in analysis. It teaches pupils to tear

the heart out of a book. It leads them to compare authorities, for on every subject they consult several books. They learn how to use libraries, for bibliographies are demanded for the most important subjects. The acquisition of the power to handle books is especially the work of the secondary school, that, upon entrance to college, students may be prepared to take advantage of the wider facilities of the college. Just as in Greek and Latin, French and German, the pupils are expected to learn in the fitting-schools how to use the language as an instrument, that in college it may be the means of general culture—of getting literature, and philosophy, and scientific knowledge, so in history, the pupils should learn in the fitting-school how to use its implements, books.

But after the content of a book has been seized and formulated in a tabular view, the pupils must learn how to hold it in memory. To help them do this we cultivate the logical memory, the imagination, the feelings. History is a logic which writes itself in facts, and when its necessary connections have once been seen the parrot memory may be dispensed with; hence pupils are constantly called upon to judge from given premises what results should be, and where their judgment coincides with the facts, there is little danger that facts will be forgotten. The imagination will present in one view the picturesque groupings, dramatic incidents, and connected progresses with which history abounds if once they have been impressed upon it. Feeling we seek even more earnestly to cultivate—the pupils must learn to grasp the conception of the Good as it appeared to each historic people and to feel the power it had for it; in the Homeric Age he must thrill with sympathy for the heroic, recognize the power of the grand manner which never loses its noble grace, its harmonious serenity, whatever it may portray; in Athens, the "fruitful, immortal, anointed, adored city of men without master or lord," he must love as the Athenians loved; he must exult in the mighty pride of Roman citizenship; he must will with the indomitable strength of the Teuton the assertion of the individual and his natural rights. Let the pupils feel history—its tremendous

currents of passion, its strong outreachings after the objects of its desire, its aspirations, its struggle, its onward sweep, and they can no more forget it than they can forget themselves—for it is the self with all its passions, and powers, and fortunes, writ large.

Contemporary life is grasped in the same manner; the teacher in monthly lectures upon current events tries to analyze its complexity and to classify its great problems—constitutional, economic, social, etc.; the pupils, in the constant obligatory reading of newspapers and of designated articles in the best magazines, make kindred analyses which they present in weekly summaries and in monthly themes. History and the world-life of to-day are identified, and in their treatment the development of the same powers is sought.

The psychological powers find constant exercise in the study of history, and herein lies, perhaps, the special value of history as training for practical life. Other branches of education develop equally particular powers of thought in particular fields: mathematics and logic teach us to reason; science to collect facts and formulate laws; but history has for its subject man; his modes of feeling and action, his motives and character; hence its study demands an understanding of human nature; in other words, history is rooted to psychology. The student must grasp the different sides of man's nature, the feelings, the intellect, the will, and discriminate their functions, while comprehending their interdependence, if he will understand the personalities and the general movement of history.

Since the comprehension of man is the business of history, psychological analysis of historic races and personages is one of the chief concerns in the schoolroom. As peoples and men are met, there is required from the pupil a description of each from the points of view of physical endowment, temperament, mental and moral qualities, and organic results of the interworking of all the powers.

The logical and ethical powers of the pupil find still wider training if the teacher is himself vitally interested in the great

questions of ethics, of political philosophy, of political science. If he himself has defined his notion of the nature of man, the necessary relations which this nature establishes among individuals, the ideal state which furthers the development of this nature; if he has, from the facts of history, drawn conclusions to support his opinions, he cannot teach history without teaching ethics and political philosophy and political science. Each state which he meets is inevitably compared with his ideal, and he discusses with his pupils, as grounds of its failure or success, its adaptation to man's nature. His teaching of history resolves itself into a search for law through the study of facts, and his pupils learn to see that just as mathematics does not consist in the concrete objects which it enumerates and measures, but in an ideal system of relations, just as science is not a mere collection of sense-facts, but the mentally conceived laws which express themselves in the facts, so the reality of history is not a mere series of events, but is the harmoniously developed totality of laws which govern human relations. History is the record of the world's search for the ideal harmony of relation of a rationalized whole, where each member persists in being through its universality, and of the world's effort to realize this ideal.

EDUCATIONAL VALUE OF HISTORY—The nature of education and the nature of history have been analyzed. It remains to state the ratio between them. Since general education is the training of the ethical, logical, psychological, and acquisitive powers of men, and since history, when properly taught, affords ample means for such training, the value of history in general education is 100:100. Special education, that which concerns itself with the acquirement of means to an end, or with the cultivation of special faculties, may be better served by other means.

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VI

THE EDUCATIONAL VALUE OF NATURAL SCIENCE

In this paper I have only undertaken to state the case; the limits of space will not permit the presentation of arguments to defend it. It will be understood that I have not attempted to state the value of science as it is now taught in the schools, but rather as it might be taught. In mentioning values I have omitted several considerations, such, for example, as the giving of useful information, and dwelt rather upon what seems to me to be the chief value of the study of science, viz., the training in certain habits which may be characterized as scientific.

Through the study of science the habit of investigation is acquired. As soon as one begins to explore by the methods of natural science—and a pupil in the primary school is not too young to begin—he feels a strong impulse to investigate further. He finds that his field of knowledge has been extremely small, and that he has been entertaining fantastic ideas concerning that which lies outside of his little circle. Very many of his ideas break down when he begins to investigate, and correct ideas must be established in their place. Children are generally eager to investigate, but a notion has long prevailed that if they become wise through their own explorations they are not so likely to be good. As a result of this it has happened that nature's feasts have been spread in vain, while we have with one accord made it our excuse that we think it safer to take our knowledge only at second hand. Someone has said, "In this world a large part of the business of the wise is to counteract the efforts of the good." It is the undoubted mission of science to enable the good to become the wise. Dr. Josiah Strong in the *New Era* says: "Generation

after generation has repeated the mistakes of its predecessors at a dreadful cost of suffering and loss, which was as needless as it would be for ships, in clear weather, to split on rocks known to sailors for centuries." Professor Brinton says: "The good which we endeavor to attain is scientific truth, the one test of which is that it will bear untrammeled and unlimited investigation. Scientific truth is absolutely open to the world; it is as free as air, as visible as light, there is no such thing about it as an inner secret, a mysterious gnosis, shared by the favored few, the select illuminati, concealed from the vulgar horde or masked to them under ambiguous terms. Wherever you find mystery, concealment, occultism, you may be sure that the spirit of science does not dwell, and what is more, that it would be an unwelcomed intruder. Such pretensions belong to pseudo-science, to science falsely so called, shutting itself out of the light, because it is afraid of the light." The scientific mind investigates for the sole purpose of finding out the truth, and to the truth all preconceived ideas are subordinated. "It does not assume to know what ought to be, but finds out what is. On this line all the victories of modern science have been won."

Through the study of science the habit of observing relations is acquired. Persons may have the habit of observing to the minutest details things in which they are interested without practicing scientific observation. Scientific observation is always organized observation. It relates one thing to another, lighting up one fact by another, searching for the relation of cause and effect. The unscientific mind is insensible to the lessons which its observations and experiences would teach. I have discovered a large number of persons, old and young, who have not learned the lesson that when they look into a mirror obliquely they see objects not from their own immediate vicinity, but those situated upon the opposite side of a perpendicular to the surface of the mirror. I have also discovered that it is possible for persons to have much learning and still be oblivious to such an obvious fact. Professor Wesley Mills says, "I have known children who did not go to school till

seven years of age, who prior to that period had learned to be good observers of what was going on around them, to lose all love for natural objects after being at school a couple of years; and I do also know to my sorrow that many of the young men that enter our colleges neither know how nor care to observe. They prefer not to look nature directly in the face, but try to see her through the medium of books, lectures, etc., and for this our school system is largely responsible." A college graduate and a candidate for the degree of Ph. D. was asked what evidence he had that air makes a fire burn, and he made a pitiable spectacle trying to recall what the authorities said upon the subject. A boy of twelve when asked the same question said, "We close the stove draughts to shut out the air when we wish to check the fire, and with a bellows we blow in more air when we wish to quicken the fire." The *Popular Science Monthly* in an editorial says: "If there is a fact that experience has overwhelmingly illustrated and established, it is that mere book-teaching of science is void and of none effect, nay that it is worse; that it has an actively injurious effect on the mind, which it deadens with meaningless jargon and befogs with ill-comprehended notions. How hollow, and often how fantastically absurd are the ideas children acquire of things of which they are told but which they have never seen or handled. Let us turn children out of the public schools ignorant, if need be, of many things that are taught to them now, but let this idea at least be rooted in their minds, that this world is made up of real things; and this further idea, that words are worse than useless unless they can be applied in the most definite manner to well understood objects of sense or of thought. What a blessing it would be if we could inspire the rising generation with a real horror of vague and meaningless language. It would mean nothing less than an intellectual revolution in the world." Scientific observation means seeing with one's own eyes and having, as a result, a train of thoughts start in one's own brain. Professor Tyndall said that "Faraday never could work from the experiments of others, however clearly described. He knew well that from every experiment

issues a radiation, luminous in different degrees to different minds."

The following is presented as an example of scientific observation. We built a fire in the furnace which smoked much. After it had burned a few minutes we opened the door and found it covered with drops of a dark brown liquid as thick as molasses and having a characteristic odor and taste. A piece of burning paper or wood was dropped upon a white plate. Drops of the liquid appeared upon the plate afterward which resembled closely those found upon the furnace door. A paper tube was burned at one end and the smoke passed through the full length of the tube. The walls of the tube were found afterward to be saturated with a liquid like the one already mentioned. A similar liquid was found to drip from the joints of a long stove pipe in a building where wood was burned. A similar liquid appeared to saturate the rind of some ham which had been smoked. A scientific imagination is required to assist in correlating these observations, and a scientific conservatism must be used in drawing conclusions from them.

The study of science is valuable for the purpose of developing a constructive imagination. The scientific imagination is similar to that which enables a sculptor to see a statue in a block of marble, or which enables a painter to imagine to himself the picture he is to make upon the canvas, or that which enables the architect to form an idea of the building he is to construct. The scientific mind uses imagination not only for discovery but for appreciating facts. Teachers who suppose that a school laboratory is useful only for teaching the inductive method sometimes say that life is too short for pupils to spend much time discovering truths which have been already discovered. The fact is that very little discovery can be expected to take place in a school laboratory, but nevertheless the laboratory furnishes the only means by which the pupil can reach an understanding of the truths of his science. Through the microscope one sees only minute portions of an object at one time. The constructive imagination needed to form a conception of the whole is slowly

developed by working with the microscope. By laboratory experiments we illustrate in a small way the great phenomena of nature—phenomena which are too large to be presented as a whole to our observation. A constructive imagination is needed to make the transition from the laboratory experiment to the natural phenomena. For the purpose of developing a constructive imagination illustrative experiments have a high value, and should be mingled with all quantitative work. Scientific observation and a scientific imagination were developed to a high degree in Laplace to enable him to discover the nebular hypothesis, and scientific observation, together with scientific imagination, is requisite to all who would appreciate how the nebular hypothesis explains the way in which worlds are made. Scientific observation and a scientific imagination enabled Darwin to do his work, and without scientific observation and scientific imagination we shall never be able to appreciate evolution.

A person who has acquired the habit of making use of scientific investigation, scientific observation, and scientific imagination will surely become well informed. Most of us are ignorant when we might be wise if we would give attention to the phenomena which are daily presented on every hand.

Science teaches conservatism in making and accepting conclusions. It begets a desire to examine the evidence for everything. It propagates a wholesome skepticism in a world which has a passion for being hoaxed. If the scientific mind were cultivated more widely, newspapers would not find falsifying so profitable, advertisements would not be so palpably untrue, and history would not need to deal with exaggerations in order to be readable. It is probable that all the available history that would be useful in the education of such a mind might be gathered into a very brief course. Science is largely a matter of common honesty. The first thing a person has to do when he wants to begin to be an honest man is to take an inventory of his stock of knowledge, or what he has considered knowledge, and throw much of it overboard, following the advice of that eminent sage who said: "It is better not to know

so much than to know so many things that are not so." It cannot be doubted that the dishonesty of those people who disregard evidence does more harm than the dishonesty which we call lying and cheating. Certainly the first kind of dishonesty is far more prevalent than the second. What one gains by being dishonest with himself in respect to the stock of knowledge which he possesses, it would be difficult to say; yet there are no possessions to which one is apt to cling so tenaciously as to that mass of knowledge which he has adopted either without evidence or contrary to evidence. The scientific mind enthrones reason above authority. The world has suffered too much from authority. Ignorant and unreasonable authority has forced into submission an ignorant and unscientific world, and thus resisted the progress of truth. Even a child has an inalienable right to an explanation whenever any course he is required to pursue seems unreasonable to him. It is tyranny to require implicit obedience whenever an explanation is possible.

Painstaking habits are developed by the exercises of a well-conducted scientific laboratory. Teachers of science should require carefulness in performing experiments, carefulness in taking observations, and carefulness in drawing inferences. Careless, slipshod experimenting will always go hand-in-hand with careless observing and with hasty inferring. Most of the knowledge which really is worth while has to be dug out by dogged persistence. Perhaps our education cannot be too extensive, but it certainly is too little intensive. We are sure of nothing. We do not take time to connect and correlate. We do not digest and organize our knowledge. We are smatterers. We have a newspaper education. We deal in snap judgments. We hold opinions upon profound questions without any study whatever. Real science study cannot be looked upon as a diversion or a device for getting the attention of a weary class. If it is worthy the name of science, it must be quite as disciplinary as the study of classics or mathematics. It may be pleasurable, but the pleasure should be that which comes from a sense of increasing power.

The student of science will not be satisfied with vagueness. He will require that his knowledge shall be very definite, and he will, as a result of training in science, acquire the power of giving expression to his knowledge in very definite language. Such masters in science as Huxley, Spencer, and Tyndall are masters also in the art of saying what they mean. It is chiefly in this respect that science furnishes a training in the use of language.

"Common sense" is not a natural heritage, it must be acquired. To this end the study of science may be made a most potent agency.

The study of science should develop the capacity for earning a living, and at the same time give one reasonable ideas about what constitutes good living. It should act as a moral ballast. Its devotees are not subject to petty vices. It cannot be said of them that "they are more afraid of doing things conventionally wrong than of doing things morally wrong."

Science furnishes a basis for true religion. "True science and true religion," says Professor Huxley "are twin sisters, and the separation of either from the other is sure to prove the death of both. Science prospers exactly in proportion as it is religious; and religion flourishes in exact proportion to the scientific depth and firmness of its basis. The great deeds of philosophers have been less the fruits of their intellect than of the direction of that intellect by an eminently religious tone of mind. Truth has yielded herself rather to their patience, their love, their single-heartedness, and their self-denial, than to their logical acumen." Herbert Spencer says: "So far from science being irreligious, as many think, it is the neglect of science that is irreligious—it is the refusal to study the surrounding creation that is irreligious. Take a humble simile. Suppose a writer were daily saluted with praise couched in superlative language. Suppose the wisdom, the grandeur, the beauty of his works were the constant topics of the eulogies addressed to him. Suppose those who unceasingly uttered these eulogies on his works were contented with looking at the outside of them; and had never opened them,

much less tried to understand them. What value should we put upon their praises? What should we think of their sincerity? Yet, comparing small things to great, such is the conduct of mankind in general, in reference to the universe and its Cause. Devotion to science is a tacit worship, a tacit recognition of worth in the thing studied; and, by implication, in their Cause. It is not mere lip homage, but a homage expressed in actions; not a mere professed respect, but a respect proved by the sacrifice of time, thought, and labor. Doubtless to the superstitions that pass under the name of religion, science is antagonistic, but not to the essential religion which these superstitions merely hide. Doubtless, too, in much of the science that is current there is a pervading spirit of irreligion; but not in that true science which has passed beyond the superficial into the profound."

The study of science is humanitarian. Professor Brinton says: "The aims of science are distinctly beneficent. Its spirit is that of charity and human kindness. Its mission is noble, inspiring, consolatory; lifting the mind above the gross contacts of life, preserving aims which are at once practical, humanitarian, and spiritually elevating." Coleridge said that "Sir Humphrey Davy would have established himself in the first rank of England's living poets, if the genius of our country had not decreed that he should rather be the first in the first rank of its philosophers and scientific benefactors." Goethe found nothing inconsistent in the spirit of science and the spirit of poetry. Some people give their idea of a scientist in the expression "a cold-blooded scientist." If they think that the study of science makes one incapable of love, they should read the lives of Agassiz and Faraday; and if they think that the scientist is incapable of enthusiasm, they should visit him in his laboratory or follow him through the fields.

Mr. Spencer says: "The current opinion that science and poetry are opposed is a delusion. On the contrary, science opens up realms of poetry where to the unscientific all is a blank. Is it not indeed an absurd, and almost a sacrilegious belief that the more a man studies nature the less he reveres it?

Think you that a drop of water, which to the vulgar eye is but a drop of water, loses anything in the eye of the physicist who knows that its elements are held together by a force which, if suddenly liberated, would produce a flash of lightning? Think you that what is carelessly looked upon by the uninitiated as a mere snow-flake does not suggest higher associations to one who has seen through a microscope the wondrously varied and elegant forms of snow-crystals? Think you that the rounded rock marked with parallel scratches calls up as much poetry in an ignorant mind as in the mind of a geologist, who knows that over this rock a glacier slid a million years ago? The truth is that those who have not entered upon scientific pursuits know not a tithe of the poetry by which they are surrounded. Whoever has not in youth collected plants and insects knows not half the halo of interest which lanes and hedgerows can assume. Whoever has not sought for fossils has little idea of the poetical associations that surround the places where imbedded treasures were found. Whoever at the sea-side has not had a microscope and aquarium has yet to learn what the highest pleasures of the sea-side are. Sad, indeed, is it to see how men occupy themselves with trivialities, and are indifferent to the grandest phenomena—care not to understand the architecture of the heavens, but are deeply interested in some contemptible controversy about the intrigues of Mary Queen of Scots!—are learnedly critical over a Greek ode, and pass by without a glance that grand epic written by the finger of God upon the strata of the earth."

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VII

THE EDUCATIONAL VALUE OF ENGLISH

I believe that the chief aim of education is not merely to produce men "useful and happy," but to surround each pupil with those conditions in which he can manifest to the highest degree his own peculiar inherited endowment; in other words, to enable him to acquire the power to do his utmost through knowledge, and to be his utmost through character. And since character is so largely determined by the habits and the ideals of the individual, it seems to me that no subject of instruction meets so well these high conditions as English.

The fact that English is the medium through which all our subjects of instruction win their educational value is the source not only of its great general importance, but also of its unique difficulties, when considered as a subject of instruction of equal importance with the traditional Latin, Greek, and mathematics. The prime test of a liberal education in any civilized country is mastery of the mother-tongue. Now, the burden of those liberalizing influences, associations, and ideals that the mother-tongue bears to English-speaking men is greater than comes to them from all other sources put together.

> "We must be free or die, who speak the tongue
> That Shakspere spake; the faith and morals hold
> Which Milton held."

In addition to its own special advantages, therefore, whatever educational values are attributed to other subjects may be claimed indirectly for English. The educational value of history, for example, is based largely upon the ground that it deals with the realities of life; but literature, and no literature more adequately than English literature, deals with the deeper spiritual realities of life, the ideals and achievements of man, not in the unsatisfying imperfection and incompleteness of

actual time (especially of present time), but perfected and completed by the imagination, that supreme faculty "which creates the world, and to which the world belongs." Literature, too, while it may not give all the values derived from the processes of science, yet, being "the criticism of life by gifted men, alive and active with extraordinary power at an unusual number of points," as Matthew Arnold used to say, has a "fortifying and elevating and quickening and suggestive power, capable of wonderfully helping us to relate the results of modern science to our need for conduct, our need for beauty." Without poetry science is incomplete, for "poetry," Wordsworth finely and truly calls, "the breath and finer spirit of all knowledge—the impassioned expression which is in the countenance of all science"; and even Darwin, you remember, complaining of the lamentable loss of his taste for poetry and music, admits that "it is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature." And so with mathematics and foreign languages—adult specialists in these branches may rise above the need of expression in English; but all schoolboys think and dream in English; they cannot be said truly to know if they cannot give a clear account of what they know in idiomatic English. Now this interdependence suggests at once one of the most fruitful economies of elementary instruction.

If the comprehensive educational domain of the mother-tongue, extending from infancy to old age, thus gives it great general importance, the self-sufficient familiarity of everybody with the mother-tongue begets difficulties no less serious. No subject is begun under more ideal circumstances than English, but as life grows more complex, habits of speech and thought often become so bad that the teacher's work from the very beginning is, in some measure, reformatory. Except under rare circumstances teachers can control but a small portion of the pupil's time, and the special English teacher but little of that. In other subjects out of school the pupil loses only what he forgets; but in English, he not only

forgets, but almost every influence out of school nowadays fortifies his indifference or arms his resistance to serious, systematic, painstaking English work—the more effectively in that the corrupting influences to which he is longest exposed are generally the most insidious. The difficulties that embarrass the English teacher in realizing the educational value of his subject are appreciated by all. In considering some of the special values, I shall therefore have to emphasize methods somewhat; and I shall follow a chronological rather than a psychological order, in the hope of bringing out more clearly the aims and economies in the early work that I believe must be realized before any radical improvement in the results of later work can be permanently secured.

It is the conspicuous privilege and responsibility of English that it is the first subject to contribute to the education of American youth. The child's first intellectual impulses are strengthened by the stories with which his guardians entertain him, and his sense of melody is developed and his ear trained by the songs and nursery rhymes with which he is lulled to sleep. The very processes of learning to speak are fraught with educational suggestions and parental responsibility. "You may put poison, if you please, in an earthen pitcher," said Socrates, "and the pitcher be washed after, and none the worse; but you can take nothing into the soul that does not indelibly infect it, whether for good or for evil." At a time when the child is a miracle of activity in observation, imitation, memory, it is of the utmost importance that he should have good models for observation and imitation.

The great educational value of English at the next step in the child's mental development is often not readily secured, because teachers so magnify the mechanical difficulties of learning to read and write that they leave out of account the imagination of the child and the economy to be derived from his sometimes wonderful accomplishments in oral expression. If considerations, not of number of syllables and difficulty of pronunciation, but considerations of the attractiveness and the adaptability of the matter, should determine the grading of his early reading,

the pupil would more quickly come to his rightful possession of a cultivated ear, trained imagination, love for poetry, and taste for good reading. The greatest educational advantages in this direction are secured when the selections are of the highest literary merit, true to nature, and of broad human interest.

Along with an increased use of poetry as a means of culture, I conceive "learning by heart" to have momentous educational value, not only because it develops the memory, but because it supplies the young mind with concrete examples. Why poetry is the source of the best culture, how poetry ennobles, educates the very best in us, what the characteristics, in form and matter, of the best poetry are, critics can never agree in telling us; but time and the judgment of the race have put the stamp of approval upon much literature, the possession of which in the memory, as a never-failing touchstone by which to try other literature, is of inestimable value. For good taste in literature leads to good taste in the highest sense, which should not fall short of Carlyle's definition, "a general susceptibility to truth and nobleness, a sense to discern, and a heart to love and reverence all beauty, order, goodness, wheresoever or in whatsoever form and accompaniments they are to be seen." And never did the youth of any country need such taste as the youth of America to-day.

I cannot lay too much stress upon the great educational value of good reading aloud. Nothing, however, I suspect is doing more to destroy the simplicity of character and unconsciousness of manner with which, like an emotional and intellectual chameleon, the reader should become the author he reads, than most professional elocution. Sufficient vocal culture to enable the pupil simply and artlessly to reproduce his thought and emotion is of inestimable value, not only because good reading enables him to feel more keenly the beauty, worth, and power of what he reads, by enabling him to share it with others, but also because good reading seems likely to be our best, if not only, means of testing, if test we must, appreciation of literature.

After reading and memorizing, writing and composition—

after us, the deluge. Composition, sympathetically conducted, even at the stage when the mechanical difficulties of writing offer so great obstacles to unconscious expression, may touch the young pupil at more vital points, intellectual and moral, than all the rest of his work combined. Composition relates his scattered forces and restores their balance, puts him into possession of himself, and disciplines him in habits the most essential to the formation of character. At the time when his faculties of observation and imagination are photographically alert, the educational value of the natural sciences in supplying interest and material is surpassed only by the educational value of his reading in supplying the tools and models of expression. When out-of-door observation is not feasible, even the words on the printed page, first in the sentence then in the dictionary, may be made the object of as scientific discrimination as birds, insects, flowers, trees, stones, and weather. And this habit of observation, whether out of doors or in, is the surest road to correct spelling; for spelling, although originally phonetic, has now become almost exclusively a matter for accurate observation.

Before the pupil has acquired some fluency in the use of words, or before the increasing difficulties in his reading naturally demand the exercise of his slowly developing analytic faculty, grammar not only has no educational value, but like much of the premature work in arithmetic and geography, is of incalculable harm; when the need naturally arises for names for the functions and simple relations of words in sentences, we find the resort to the traditional grammatical terms and a little old-fashioned parsing to be of considerable educational value, not as an end, but as an aid to precision of thought and facility in interpretation of harder sentences than usual. The parsing, however, should be simple and confined solely to prose selections, and to sentences to be translated into French or Latin; for my experience has also convinced me that when the student of English is old enough really to need grammar (about nine or ten years), he is old enough to study a foreign language, whereby at once his conception of the power of ex-

pression is miraculously expanded; and he is old enough to profit by the precision of the inflexional forms and the objective reality of simple syntactical relations, such as are furnished by easy Latin, taught by stems.

If, however, after three or four years of stimulating work like this, the pupil in English, at the age of twelve or thirteen, is not well established in habits of seeing and recording things as they are, of making reasonable inferences, and of expressing himself simply and naturally, I do not see how his English teacher in the high school is to enrich his course in literature; for to a boy who cannot see and will not think, most literature is too mature and all good literature dull.

I was so firmly convinced that heedlessness and mal-observation were the root of all our difficulty in realizing the full educational value of English composition, that several years ago (before I attempted to throw the work so far described into the grammar grade, where it properly belongs), in sheer desperation, I borrowed a number of bird-skins and books on ornithology, and strove to interest my first-year class in birds, merely as objects for description. I hardly knew one bird from another myself. The first thing I knew the boys were off into the woods, and were bringing back—not birds, but very puzzling questions to me. The next year I went out into the woods, too. From year to year we have varied our books and our walks, but every week has come the genuine record of interesting personal experience, and at the end of the term the full record of the spring migration. My boys this very morning are out looking for red-wings and blue-birds, and they will have something to say whether they find them or not. I often meet them with note-book and opera-glass in hand; and last month I met two of the older boys with a box of food, on their way to the distant hills to feed a brown thrush which they had discovered with an injured wing after the fall migration, and which they had kept alive all winter. Two active ornithological clubs have been formed, and seniors in college have expressed their gratitude to me for arousing their interest in birds—"one of the best things they got out of school." But

English composition was my object, and I attained it; interest in ornithology was the by-product.

The well-equipped English teacher has a rare opportunity to remove the ground of the reproach cast by nearly all men of letters, most men of science, and all business men, that

> "The masters quite omitted
> The lore we care to know."

If the short daily composition exercises are of the nature I have indicated, the English teacher discovers from genuine, self-revealing themes of his pupil, the very lore he cares to know—his pet interests, books, and authors; and thus, he may gradually so relate the pupil's outside interests to his school work, that finally he may lead him into the pleasant fields of literature itself, by which his ambition may be raised, his tastes and ideals elevated, and his character ennobled.

The educational value of English at this point is vastly increased by co-operation with the library. Voluntary supplementary reading is always the most fruitful. Furthermore, the most useful practical power a student can be given is the power that directs him to the right place to find things, or the ability to use books. Nothing can impart that needful power so effectively as original investigation in connection with English school classics. I almost believe that we confer a more lasting benefit upon boys who are going to college by training them judiciously in this indispensable habit, than by giving them a strenuous course in historical word-study with Murray and Skeat, or historical grammar and syntax, or word-formation and phonetics (without which all English etymology is worthless), or Old English phonology and literature, or any of the other courses by means of which English may easily be intensified to equal educational value with the traditional subjects; and will be so intensified in some schools upon the adoption by the college of the resolutions of the New England Association of Colleges and Preparatory Schools.

The new requirements in English, with their much needed introduction of paragraph-writing and their intensifying of the

literature work, already make it easier to realize some of the educational values of composition and literature that I have outlined above; but to realize the highest educational values of English under pressure of the examination spirit is impossible. The appreciation of truly great literature is not a subject for written examination at all; and not until the college is prepared actually to reject a candidate for failure in English composition on other papers than the English paper; not until all other teachers in school refuse to accept written work that falls below the high standard set by the English teacher, can examination draw forth composition of the highest possibilities.

In conclusion, let me repeat: without imagination, observation, and a reading habit, no boy can learn to write or to appreciate good writing; yet expression, the mastery of what Newman calls "the two-fold Logos, the thought and the word," is the flower of a liberal education; and the attainment of the mastery is an unmatched discipline in discrimination, judgment, taste, and those habits of neatness, accuracy, painstaking, thoroughness, patience, that are the foundation of character. During his unwearied striving for lucid expression, there begin to stir in the growing boy deeper emotions, keener sensibilities, warmer sympathies, the moral sentiment; in the literature which he reads for material and models, he suddenly finds the utterance of his own better self; and just as the generous striving for luminous expression begets the essential condition for luminous expression,—clearness of thought,—so association with the beauty, truth, power, and ideals of literature lifts the boy to a higher level of character and being. Fortunate for the youth of this country that its own noble literature contains the highest ideals of the race—fortunate for the country, perhaps, that its great poets were moralists first, then poets.

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VIII

THE EDUCATIONAL VALUE OF THE MODERN LANGUAGES

The value of a study for educational purposes depends, I take it, first, upon the effectiveness of that study as a means of mental discipline, *i. e.*, in training the faculties of the intellect, in giving a healthy stimulus to emotional life, and in developing strength of character, and, second, upon the usefulness, in the various relations of life, of the fund of knowledge obtainable through the study in question. The disciplinary value of a study is practically an invariable quantity, except so far as it is affected by the method of teaching employed; the immediate utility of a study, however, depends upon circumstances and conditions which vary considerably in the course of time and in different localities. Thus the utility of Latin was greatest when that language was the universal medium of communication between scholars; the utility of German is greater in the Middle and Western States of this country than in New England or in the South. Utilitarian arguments in favor of the study of modern languages have been urged so often and are so well understood that I need not accord to them more than a passing mention. The desirability of a speaking knowledge of foreign tongues in social intercourse, in traveling, and in certain lines of business is to the educator a comparatively unimportant consideration, since the results obtainable in our schools by purely conversational methods are admittedly unsatisfactory. Of far greater weight is the fact that a reading knowledge of German and French has come to be indispensable to scholars in almost all departments of learning; a fact which would alone suffice to secure for these languages a place in the curricula of the colleges, if not of the schools. But after all, the main object

of the study of foreign languages in our educational institutions is not the acquisition of a knowledge or a skill which can be put to immediate use in other studies, or in the pursuit of either pleasure or business, but the opening up to the pupil of the treasures of thought and sentiment accumulated in the literatures of other nations; and the educator is therefore concerned chiefly with the effect which the study of languages and literatures has upon the development of the mental faculties.

Much of what I shall have to say concerning the disciplinary value of the modern languages will, of course, apply with more or less force to other studies as well, especially to Latin, Greek, and English; it will be necessary, therefore, to point out, in concluding this inquiry, the features which are peculiar to my subject. I have alluded above to the influence which the method of teaching may have upon the educational value of the languages; but the consideration of this subject would lead us too far and must therefore be dispensed with.

At the outset, the study of a language brings into requisition chiefly the powers of memory and observation. So far as the inevitable learning by rote of a large number of words and inflections is concerned, the benefit accruing therefrom to the general retentiveness of the memory may be questioned and is at best but slight; but a rational method of instruction will make the least possible use of mechanical means of acquiring knowledge. It will proceed in the main inductively by taking up an easy text either at the very start, or after but a few weeks' study of the outlines of accidence. It will teach the pupil to impress each new observation upon his mind by associating it with facts previously observed and bringing it into logical relation to them; and, in thus constantly using what psychologists call the *judicious* method of recording experiences, it will tend to the formation of a mental habit which is the surest means of improving the memory. At the same time the necessity of close attention to minute details of pronunciation and spelling, to inflectional changes in endings and root-vowels, and to the significance of word-order cannot fail to

quicken perception and to train observation. Very probably the net result of this training is not an increase of the power of observation in general, but merely a heightening of its efficiency in dealing with linguistic phenomena; but in any case the gain is considerable, and will prove of advantage to the pupil not only in the further study of foreign languages, but also in that of his mother tongue. The value of the study of foreign languages in leading the pupil to a better understanding and a more thorough mastery of his vernacular is universally recognized. In that respect the translating of foreign texts is especially useful. It leads at every step to comparisons between foreign modes of expression and their equivalents in English, and thereby serves to throw new light upon the latter; it obliges the pupil to weigh his words with care and to discriminate between fine shades of meaning, in order to produce a translation which shall be exact, appropriate, and idiomatic; and it thus cultivates the power of expression and helps to develop a clear and forcible style.

The learning of a language involves, further, the constant exercise of the reasoning power. The classification of new facts observed requires the discernment, by analysis, of common characteristics and of their import as a part of a system; in translating, the logical relation of the different parts of a sentence, and of different sentences, to each other, must be ascertained and every word-form and construction must be accounted for; and in composition the application of difficult syntactical rules, like those governing the use of the subjunctive, necessitates intense logical thought and furnishes training of a correspondingly high order. Translating at sight, which has such a prominent place in language-teaching now, derives its value chiefly from the fact that it throws the pupil upon his own resources and compels him to make the most extensive and telling use of his reasoning power. Practice of this kind is, at the same time, intended to beget self-reliance in the matter of translating; but that is no easy task, for here the teacher has to do with the forming of character. It takes a strong effort of the will to fix the attention upon the task of laboriously

recalling or reasoning out what can be found with little trouble in the dictionary, or by turning back to some similar passage; and it is safe to assume that but few pupils will use that method when they are not under the eye of the teacher. But in other respects translating offers to the teacher excellent opportunities for exercising a beneficial influence upon the mental habits of the pupil. As Mr. Lowell said, in addressing the Modern Language Association, five years ago: "Translating teaches us, as nothing else can, not only that there is a best way but that it is the only way"; and by refusing to accept any but the best translation, the teacher can do much toward forming in the pupils the habits of conscientiousness and accuracy. But from the point of view of ethical training, the study of the literatures is of far greater benefit than any amount of linguistic drill. From the simple fable or fairy-tale to the masterpiece of poetic genius, every good work of literature implants ethical ideals, incites to moral action, and gives a healthy impulse to the emotions. As President Schurman said in the pages of the *School Review* last year: "The pre-eminence of literature as educative material is due to the fact that, coming as poetry does from the intellectual and emotional depths of creative genius, it awakens, and nourishes, and calls into activity the corresponding potencies of those who are touched by its influence." And in addition to this there is the extension of the mental horizon, the overcoming of bigotry and prejudice, the incentive to justice and tolerance: in short, the general broadening and liberalizing of the mind which comes from an insight into the moral and intellectual life of other nations, and from the appreciation of their achievements. Two more points I will briefly mention: the stimulus which the study of literature gives at every step to the power of imagination; and the effect which it has upon the æsthetic sense in developing literary taste. Nor must we forget that literature contributes very materially to human happiness by opening new sources of enjoyment, of intellectual delight, which—to quote again Mr. Lowell—because it is refined, is refining too. To sum up: the modern languages and

literatures, besides being of great practical utility, afford valuable training for all the faculties of the mind; in their influence upon the emotions and the imagination, they possess decided educational advantages over other studies, excepting, of course, the ancient languages, and perhaps history, and I think it is no exaggeration to say that any one of the languages usually taught in our schools, together with its literature, covers a wider range of human interests and appeals in more ways to the human mind than any other single study, without exception.

My next inquiry is: What can be said for the educational value of the modern languages as compared with that of Greek and Latin? Without stopping to consider matters of detail, I will mention at once the two points which seem to me to be of real importance: In the first place the content of the modern languages and literatures is a part of the civilization in which we ourselves live and with all the aspects of which we ought to be familiar. In the second place, the modern languages (particularly German, with its wealth of fairy-tales, legends, and folk songs) have the advantage of possessing works of literature which, while of high merit, are yet so simple in form and contents that they make admirable reading for youthful beginners; and this fact, together with the greater ease with which the languages themselves are learned, enables the beginner to arrive at the enjoyment of literature *as such* very much earlier than he could in Greek or Latin. Hence the modern languages have particular value in arousing and sustaining an interest in foreign languages generally. It follows then—if I may, before closing, go one step farther—that they, or one of them, should be taken up before the ancient languages. I should like to add this argument in favor of the introduction of a modern language into the grammar school, to those advanced by Mr. Tetlow in the EDUCATIONAL REVIEW[1] last year. The modern languages are frequently looked upon as a less serious study than Latin and Greek, because, beginning as they do at a time when the pupil has already had two or three years of Latin, they seem relatively easy; on the other hand

[1] VII: 111.

the ancient languages are apt to discourage the pupil by their difficulty, and to make him doubt the possibility of his ever reading them with ease and pleasure; and that leads in but too many cases to their being dropped at the earliest opportunity. The study of a modern language in the grammar school would go far toward remedying these evils. It would at that stage be difficult enough to call for the best efforts of the pupil; it would prepare him for the study of Latin, thereby enabling him to make more rapid progress in that language; and it would encourage him to perseverance by showing him that he can learn to read foreign texts with a full appreciation and enjoyment of their literary merit.

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IX

THE UNIVERSITY CRISIS IN GERMANY

Lehrfreiheit has been so indissolubly associated with the past development of the German university, has so long been counted the inalienable right of each professor, that any abridgment in this respect must be considered not only a national but international calamity. And, strange as it may seem to those who know how great is the debt that the German nation owes to the German university, the time has come when the university must defend itself from the encroachments of the government.

The Emperor's address at Königsberg last autumn to the nobles of East Prussia urging them for the sake of "religion, morals, and order" to join him in the "struggle against the parties of revolution," has had more far-reaching consequences than were at the time suspected. The sensation caused by it in political circles was not greater than the surprise manifested among learned men that the bill which was introduced into the Reichstag at the opening of the session in December should contain an article abridging the right of free discussion in matters scientific and philosophical.

The *Kreuzzeitung* began the agitation in its issue of November 25, by asking what is meant by "religion." "As matters stand at present," it was said, "we have a double-entry system of spiritual bookkeeping. For the masses, so far as they attend the elementary schools, and, theoretically, for pupils of secondary schools as well, we have instruction in religion on the lines of positive Christianity in the name and by the authority of the state. In the universities, on the contrary, where the young men are being educated who will in time succeed to the leadership in Church and state . . . something entirely different is often put forward in the name

of science; doctrines are preached which stand in sharpest contradiction with those given to the people. . . This is excused on the ground that religion is for the people, and for them it is good enough as it is; science, however, occupies another field and seeks a different patronage—the two do not come in contact." Another article in the same paper says: "Not only are the Jews our misfortune; the liberal professors, who awkwardly and frivolously concern themselves with affairs which are none of their business and which they do not understand at all—these professors are even as great a misfortune. . . If the state permits this system to continue, if in the name of the freedom of science, men are to be allowed to teach what they will—yes, even enter into political discussions, as we have lately seen—then it is not to be wondered at that antagonism to all authority should steadily increase. For the revolution from below can be successfully met only when there is no trifling with it in the higher strata of society."

Paragraph 130 of the bill now under discussion in the Reichstag provides a penalty of imprisonment for not longer than two years, or a fine of not more than six hundred marks, in case of derogatory expressions publicly directed against religion, monarchy, marriage, family, or property.[1] The aim of the government, of course, is to secure more effective means of combating the rising social democracy, and in order to do that the law must be all-embracing. The Social Democrats in the Reichstag quickly saw the advantage of their position. Deputy Auer, in opening the debate for the opposition on January 8, naïvely inquired if the Jewish religion is to be included under religion—if not, why not? Is the section to be enforced against those "scientific" writers who recognize neither the immortality of the soul nor even the possibility of a future life? "I have seen lately," he adds, "in a high-class journal edited by a university professor a reference to the 'myth of the virginal birth.' No heed was given to it, but let a Socialist say it!"

[1] ". . . . welcher in einer der öffentlichen Frieden gefährdenden Weise die Religion, die Monarchie, die Ehe, die Familie, oder das Eigenthum durch beschimpfende Aeusserungen öffentlich angreift."

Why should one man be punished for doing that which in another is not only tolerated but encouraged under the present system?

The answer was given the following day by Freiherr von Stumm, one of the stanchest supporters of the government. The Socialist party is composed of revolutionists; it fosters opposition to all institutions of government; it breeds everywhere discord and discontent; it stands unalterably opposed to all authority. "No other means is available but the 'iron hand'—it must be force against force." Yet this is not enough; the movement is also a spiritual one. It must be met on its own ground, and above all else the sources of error must be detected and purified. Employers of labor must be made to realize their responsibility to the state and forced to desist from oppression of the working-men. "Though I have said some hard things against the employer of labor, yet I am willing to acknowledge a shadow of excuse for him, viz., the coquetting of certain learned circles with social democracy, or—what is the same thing—with revolution, as was the case shortly before the French Revolution. Gentlemen, right here in Berlin has been developed a complete university socialism. Every professor, especially in political economy, who does not fall in with socialistic views, is boycotted as was the case in France; he is persecuted, pronounced unscientific, and is never advanced. Under such influences our future officials are being trained! Things have come to such a pass that the attempt is being made to bring the Social Democratic students into closer association with the others. . . A certain part of the evangelical church is directly aiding the democrats. . . The civil service is becoming tainted. It is high time that something be done. This bill is the first step toward a cure. Its great advantage is that it reaches not only the lawbreakers but those who directly or indirectly incite to crime. There can be no exceptions; there can be no law of exceptions."

Significant as are these words of the leader of the *Reichspartei*, the next speaker gave even less room for doubt and showed plainly where the powerful Catholic 'Center' stands—

a party which numbers one-fourth of the house. Deputy Gröber, from Württemberg, maintained that the greatest defect of the measure is that it is not explicit enough, not sufficiently comprehensive. Its special advantage is that it is framed to meet error in all social grades: and there is no doubt that it will be rigidly enforced, should it become a law. The theory is gaining ground among university men, jurists, and private scholars, that "crime is a product of the times," that it may not be reckoned solely aganist the individual. Thus personal responsibility is being undermined and lawbreaking encouraged. Such doctrine is bad enough under any circumstances, but how much worse when preached to immature university students! But if "might makes right," as these professors teach, how guilty the state must be when it permits, patronizes, and pays for such teaching! The speaker then cited passages from a work by Professor Ziegler of Strassburg, *Sittliches Sein und sittliches Werden* (1890), to demonstrate to the Imperial Chancellor that the right of revolution is being taught in the university which for years has been under his protection. The excuse of right motives cannot be urged. "For such cases as these the law would be useful." Herr Gröber then quotes from Samter's *Das Eigenthum* (Jena, 1879)—a book dedicated to Professor Wagner of Berlin—to show that property is considered by these *Gelehrten* a matter of common consent, not of individual right. "This protection of the German professor is in my opinion exceedingly imprudent and wrong. Imprudent—for how can we prevent the common people from saying and doing precisely what these professors are saying in their lecture rooms, repeating in popular form, and writing in their books? [Great applause]. . . It is pure nonsense to permit in the upper grades what is forbidden in the lower. And more—it is wrong. The greater danger comes not from below but from above." After these remarks, which were enthusiastically cheered, the speaker reviewed Professor Haeckel's philosophical views and his attitude toward the Catholic Church. He quotes passages from Professor A. Döring's *Güterlehre* (Berlin, 1888), in which a belief in a future

life is called an illusion pure and simple. Professor Paulsen then comes up for castigation because of parts of his *System der Ethik*, in which the Gospels are characterized as "historical poems," and faith in immortality in the form of a personal existence is called a dream. Professors Förster and Giercke are likewise called to judgment and quickly disposed of. Such doctrines, the speaker maintained, are not harmless, as some say, but exceedingly pernicious to law and order. "They are the arsenal from which the socialists draw their munition. . . We [Catholics] are willing to follow the Emperor's lead in the fight for religion, but what use to fight when the state pays men to teach that there is no personal God, no future life? . . . But in order to do the best we can, our hands must first be freed from their bonds, our Church orders must be made free . . . for spiritual battles cannot be fought in fetters." This is the price of Catholic support.

The astonishment produced by these speeches among progressive university men can well be imagined. They have an inquisitional sound about them that harmonizes ill with nineteenth century ideals. But the spirit that founded Halle does not propose to be snuffed out by modern politicians—at least not without a struggle. In the *Zukunft* for Februrary 2, Professor Haeckel has given his opinion of the "Berlin Council" and the speech of "Bishop" Gröber. He points out to the "Bishop" that a new religion—Monism—is on the threshold, and it demands as good a right to be protected as any other. He names two of the most rabid "revolutionists" of the age—Darwin and Helmholtz—whom the civilized world has been pleased to honor, and enumerates some of the discoveries in modern science which have made nations possible. Furthermore Professor Haeckel calls the attention of the "Council" to certain other very dangerous works that are abroad in the land—those of Copernicus and Kepler, Spinoza and Bruno, Shakspere and Schiller, Kant and Goethe—to say nothing of Alexander von Humboldt and the "Philosopher of Sans-souci," the latter of whom laid down that fatal decree, "In my state each man may be happy in his own way." It rouses

Haeckel's ire when Herr von Köller, minister of the Interior, comes forward in warm support of Herr Gröber and declares that "we all believe in one God and demand that these opposing infamies cease." "More than that the Pope himself could not ask," adds Haeckel. "Have these men absolutely no idea of all that has been going on about them and of what has been penetrating the spiritual life of the people for these thirty years? Have they, indeed, no idea whatsoever of the marvelous progress made in science?—in cosmology and geology? in biology and anthropology? in critical theology and philosophy? Do these pious representatives of the Middle Ages really believe that with their rusty shields and punctured armor they can withstand the powerful weapons of the modern spirit? . . . Although I consider the utopian aims of social democracy impracticable and their ideal future state a veritable prison-house, yet that does not prevent my recognizing the kernel of truth in this great social movement. That this can be overcome by the decisions of the 'Berlin Council,' by civil or military power, no one can believe save he who knows neither political history nor the history of civilization."

The same journal, under date of February 9, prints a long article by Professor Paulsen, of Berlin, on "The universities and revolution" in which he replies to the charges made in the Reichstag. He says that it is of small consequence to him what construction Herr Gröber and his associates put upon the disconnected and unrelated passages taken from his books. The matter is more serious than that. The fact is that all the great revolutions of Germany have gone out from the universities, from Wittenberg down. And had Europe remained subject to the Pope there would have been no Cromwell in England, no Napoleon in France, no Bismarck in Germany—even the Hohenzollern would have remained Margrave of Brandenburg. This unfortunate era, of which Herr Gröber speaks, began anew at Halle, and though opposed again and again by government and Church orders, the university professor has continued to speak his mind. Herr Gröber doubts

that the measure is strong enough to reach the sources of danger in the higher ranks, or that it is so intended. "But," says Paulsen, "if it becomes a law, all the world will know what construction the majority in the Reichstag will put upon it—it is not only intended to put down social democratic agitation, but much more to do away with certain tendencies of thought which in the opinion of the majority are undermining national institutions, and to this extent, therefore, preparing the way for the dreaded revolution." The government may protest that it has no such thought, but, "I do not believe that this paragraph could or would be carried out according to the intentions of these well wishers; the natural course of events tends in the other direction." History tells all too plainly how easy it is to find transgression when once the desire is strong. And judges are only men, and government officials at that. What had more to do with sowing the seeds of revolution for 1848 than the vexatious and severe sentences passed upon members of the *Burschenschaft?* Yes, Herr Gröber is right, "every sharp criticism can be considered a derogatory expression." The error is in thinking that by any external *force* whatsoever the social movement can be overthrown. "I do not deny that free agitation has its dangers, but the dangers involved in the attempt to crush it out are not less to be dreaded; if the former are acute the later are chronic, and in the long run chronic cases are the worse." It is the great advantage of Protestant nations that their revolutions come gradually; in Catholic lands the long pent-up fury works dreadful destruction when once it is let loose. "And now are we to depart from our traditions? Are we to recognize the theory of the Jesuits, that free criticism is the root of all evil, as *der Weisheit letzten Schluss?* Is the Catholic Center to make laws for imperial Germany? Have we come to that stage? It must not, but to all appearances it will come. It will not be the last chapter in the history of the German people, but it would seem to be the next one. . . The ruling instinct of the times is the determination to command. . . It is always ready to crush down whatever opposes it . . . and in the Catholic Center it

finds able advocates. . . It were truly the crushing irony of history if the Center should secure as its reward, for supporting this measure, the return of the Jesuits and the surrender of the German professors. . . I cannot close this article without letting a ray of light fall on the gloomy aspect of the times. It appears to me as if already a new day were beginning to glimmer on the horizon. The 'Will to Rule' is still the controlling motive within the Reichstag and without. Among the educated youth, however, a new idealism is beginning to stir—new ideals of freedom and right, of the well-being and glory of the Germany people. The more recklessly the 'Will to Rule' is enforced, the more rapidly will these ideals spread and grow in strength."

Professor Paulsen's judgment of the general direction in which the students' sympathies are tending was singularly confirmed in Berlin last week. The professors of political economy, against whom it had been falsely charged that the university authorities had instituted proceedings because of their too great liberality, were given an immense ovation by the student body. The Rector of the university, Professor Pfleiderer, told the students that social questions are dangerous playthings in the hands of those who know little of the world, that the greatest danger of the times is not the persecution of the scholar, but the unscientific treatment of scientific problems. "The freedom of research and the freedom of instruction must remain inviolate." Addresses were made by Professors Wagner, Schmoller, Treitschke, and others all emphasizing the seriousness of the situation and the dangers inherent in the government measure. Public protests are being made from many sources—by university professors, secondary school teachers, and by the friends of progressive education the country over.

The result—that is something that none seems to know assuredly. A committee of the Reichstag is considering the measure with a view to satisfying the greater number. Some say that it will be dropped, or, if it passes the House, it will be so amended as to maintain *Lehrfreiheit* in all educational

work. This solution could only be temporary, because such a law would be a law of exceptions. Equity would not long suffer one class to undergo punishment for offenses of which others were equally guilty but left unprosecuted. Such a move would be the surest step toward revolution. The government cannot abandon the bill entirely without giving the social democrats greater moral strength than they have hitherto possessed. As Deputy von Benningsen, leader of the National Liberals, has said, "something must be done, or we can proceed no further." Finally, if the measure becomes a law in anything like its present form—well, it will be the beginning of the next chapter in German history, but, as Professor Paulsen writes, "it will not be the end."

JAMES E. RUSSELL

LEIPSIC, GERMANY

X

REVIEWS

German universities, their character and historical development—By FRIEDRICH PAULSEN, Professor of Philosophy and Pedagogy in the University of Berlin. Authorized Translation by Edward Delavan Perry, Professor in Columbia College, with an Introduction by Nicholas Murray Butler. New York: Macmillan & Co., 1895, 254 p. $2.00.

This account of the German universities by the distinguished Professor Paulsen of the University of Berlin, with an introductory chapter discussing the bearing of this German experience upon the problems of higher education in the United States, is a valuable and timely work. In the chaos of mind existing in America as to what in reality constitutes a university (see Professor Butler's introductory chapter) a clear presentation of the character of the German university will help us toward a definition of this term, university, which is to us as yet so indefinite in meaning. For, because of our optimistic habit of discounting the future, we sometimes name an institution of learning, which is as yet little more than a high school, the University of North America; a title which, it is hoped, will be entirely appropriate within a decade at the farthest. One can readily see, however, that when graduates of these high school universities enter foreign universities representing themselves to be graduates of an American university, the reputation of Harvard and Johns Hopkins and the few genuine American universities suffers unjustly thereby. All who are jealous of the reputation of American scholarship, therefore, will welcome a volume which will give clearer notions of the nature and functions of a university.

This is not equivalent to saying that the German university is the only genuine type. Indeed, Professor Butler in the introductory chapter emphasizes the difference between American and German conditions, and observes that an educational organization slavishly following the German model could not thrive in America. He supports this view by a presentation of the difference between the method and spirit of the American college and the German Gymnasium, which

prepares for the university of each country respectively. And yet he recognizes fully the value of the lessons to be drawn from a study of the universities of Germany, and he urges that the American university is "essentially the same," its organization having been largely effected by men trained in Germany.

He sounds a note of warning against the tendency in America to give undue prominence to the technical schools of the university (law, medicine, etc.), particularly since these departments admit immature students who have had no adequate previous training. Their work cannot, therefore, be regarded as legitimate university work, and the standard of the American university is thereby lowered. Indeed, he holds that "with the exception of the medical school at the Johns Hopkins University and the law school at Harvard, there are no professional schools in America of university rank." To bring up the standard of American universities, these departments must admit no students who have not had a broad preparatory training, and the philosophical faculty, which is "at once the essence of a university and its true glory," must dominate the university administration.

Professor Paulsen begins his account with a comparison of the three types of university found in England, France, and Germany. Of these the English type resembles the mediæval university most, the French type the least. Neither in England nor in France is it considered the function of the university to extend the boundaries of knowledge; whereas in Germany the work of the university professor is not so much to expound and hand down a generally accepted body of doctrine, the accumulated wisdom of the past, as it is to present the results of his own researches. Consequently the leading scholars in England and in France "are outside the pale of the university, in Germany they are within it." The German university professor is, it is true, a teacher as well as an investigator. But the measure of his success is largely the extent of his intellectual output. Upon this a young man's promotion mainly depends. While ability as a lecturer, success in attracting students to his courses, is not entirely ignored, yet after all the way to distinguished success is through original, scholarly work—work that extends the boundaries of knowledge even a little into what Carlyle would call the circumambient realm of Nothingness and Night.

We may from this volume understand the reason for the

extraordinary intellectual activity of the German university world; an activity which, directed as it is toward the discovery of new truth, has given Germany that pre-eminence in the world of learning which called forth Professor Bryce's characterization of her as "the nation which does the largest part of the intellectual work of the world," and which has wrung even from a Frenchman, Ferdinand Lot, the opinion that "the scientific leadership of Germany in all fields without exception is nowadays acknowledged by all nations. It is a settled fact that Germany alone produces more than all the world put together; her supremacy in science forms the pendent to England's supremacy in commerce and on the sea; and perhaps it is even greater."

M. Lot attributes this supremacy to the organization of the German universities, to their uniform corporate constitution, to the freedom of teacher and learner, and most of all to the direction of their instruction toward research.

A study of the university organization which produces such results would seem to be the duty of the hour.

In this connection it may be well to refer to Professor Paulsen's statement of the object of the young student's stay at a German university. As it is not the function of the professor to hand down a body of inherited truth, so it is not desired that the student should merely absorb truth presented to him by lecture or text-book, but that he himself should learn to work and think in a scientific way. Hence the insistence upon a proved capacity for independent research in the dissertation for the degree of Ph. D. An examination, however brilliant, on the subject matter of instruction, on the course of lectures attended, even though this course may have presented much new truth, does not in itself satisfy the requirement. The theory is that the student must not only have learned the method whereby the boundaries of knowledge are extended, but must also have proven his own capacity to carry on the investigation in some province, however small.

As to the student's mode of life at the university, he is free to do as he pleases. After he once matriculates "no official inquires about him for several years; he is left entirely to his own devices." He takes whatever course of study he pleases, he attends lectures or not as he pleases, he lives where he pleases, and at whatever university he pleases. In fact the reader of this book now begins to suspect that there may be a

grain of truth in the old story of the new arrival, who, inquiring for the university building, was answered, "I really do not know; I am a student here myself!"

This freedom of life and the *Lehrfreiheit* so highly prized by the German university student are vigorously defended by Professor Paulsen. "Here is the place to exert thine own will; thou art henceforth a man, and must answer for thyself!"

There is given much information in regard to the life of the students, their study, their societies, their recreation, dueling, etc. The total expenses for the university year range from $250 to $500, the average being between $300 and $375.

There is a chapter on the historical development of the German universities, in which is discussed the influence of Humanism and of the Reformation. We are told that the University of Wittenberg was, about 1550–1560, the most largely frequented German university, to which young men flocked "from all parts of Europe." How natural it was, then, that Shakspere should make Hamlet return to his mother's o'er hasty marriage from school at Wittenberg!

Chapter III discusses the relation of the university to the state, to the Church, and to the community. The methods of appointment to the professorships and the degree of the state control exercised are explained. Practically the university world has the power of excluding absolutely an unworthy candidate for the career of a university professor. If the candidate is so lacking in the instincts of a gentleman that he is manifestly unfit to enter upon this honored career he fails to pass the examination for the position of *Privat-dozent*, whatever his mental attainments. This examination is given by the university professors. Vacancies in the professorships are filled by the Minister of Education or by the sovereign himself from a list of three nominations submitted by the faculty of the university concerned.

In the actual carrying on of instruction in the university there prevails, we are told, practically an absolute freedom. The professor is appointed to lecture on a subject. The themes for his lectures, the number of hours to be devoted to them, the subject-matter to be treated, the methods to be followed—all this is left entirely to his own judgment.

In the discussion of the relation of the universities to the community some exceedingly interesting facts are given. We are told that so high is the estimate put in Germany upon

academic training that all young men of birth and wealth betake themselves to the universities or at least go through the *Gelehrtenschule*, that the entire German nobility and gentry feel bound to follow this course. Here they come into competition with the sons of peasants and of mechanics, for the nobility is no longer a privileged class with a hereditary claim upon all desirable public offices. This chapter deprecates the conditions of late observed which narrow the ranks from which the universities are recruited, and closes with an appeal for preserving the democratic character of the German university that future Winkelmanns and Heynes and Kants and Fichtes, born in poverty, may not be lost to the world.

The closing chapter discusses the unity of the university, touching upon the advantage of keeping the technical schools in touch with each other and with the department of philosophy—a connection which explains "the inclination of all German science toward philosophy," the tendency to "seek general and ultimate truths." The last subject touched upon is the unity of all German-speaking universities among themselves and the constant change of students and professors. A graduate of Oxford would not be likely to be called to a professorship at Cambridge, but each German university seeks to draw to itself the best men from the whole body of German scholars in order thus to increase its own attractiveness. Appendices give the dates of the foundation of the German universities, statistics of attendance, and a bibliography.

The German university professor, particularly the German university professor of philosophy, is popularly considered to have a peculiarly perplexing literary style. And yet Kuno Fischer, professor of philosophy in the University of Heidelberg, in his ponderous volumes on the history of philosophy has a literary style which is remarkably beautiful and simple. And this volume, as well as other volumes by the professor of philosophy in the University of Berlin, are not only full of matter but also clear and attractive in style.

Of the merit of the translation it is sufficient to say that it is so well done that the reader would never suspect it of being a translation at all. There is need of no further praise. Perhaps, in consideration of the labor involved in making such a translation, an expression of gratitude to the translator may not be out of place.

In view of the present interest in the problems of higher

education in America this discussion of German experience by so distinguished a scholar is a valuable and opportune contribution.

RICHARD JONES

SWARTHMORE COLLEGE

Harvard College, by an Oxonian—By GEORGE BIRKBECK HILL, D. C. L., Honorary Fellow of Pembroke College, Oxford. New York: Macmillan & Co., 1895, 337 p. $2.25.

This book is an unique study of an educational type, with a style and a point of view peculiarly its own. Mr. Matthew Arnold's official papers on the higher educational institutions of France and Germany and Professor James Morgan Hart's account of his impressions and experiences at a German university, are very different in purpose and in scope. The same is true, though in lesser degree, of Mr. Charles Astor Bristed's description of his five years at an English university.

Englishmen are notoriously indifferent to the study of education and educational institutions, particularly beyond their own borders; and not even the exertions and example of men like the late Mr. Quick, Dr. Fitch, and Mr. Foster Watson have sufficed to turn the scale. It has long been fashionable at Oxford to sneer at the German universities and to patronize those of America. More lately, and owing in large part to the influence of men of the type of Jowett, Green, and Caird, this cynical indifference is wearing away among the better class of English university men, and it is coming to be recognized that the lagging behind of Oxford and Cambridge in all that makes a university powerful and efficient is a cause for shame rather than a source of pride. The organized bands of itinerant knowledge-venders, known as University Extension lecturers, are an attempt to respond in some degree to the demands that modern civilization makes of universities.

Mr. Birkbeck Hill writes as a modern Oxonian. He has really studied Harvard intelligently and has caught something of its spirit. His chapters are at once historical, critical, expository, and chatty. They are eminently readable, and will be read. The unconscious motive of the book, which gives it a touch of humor at times (and that when the author least suspects it), is to commend Harvard to the respectful attention of Englishmen in general, Oxonians in particular. But the English critic who has read his Lowell and his Holmes

to no more purpose than to class them benignantly as writers of humorous verse entitled to rank "somewhere between Calverly and Austin Dobson" (as if there were any space there!) is not unlikely to think that Mr. Birkbeck Hill has allowed his judgment to be unduly influenced by American hospitality, and that Harvard is really a sort of inefficient Eton.

But whatever we may think of Mr. Birkbeck Hill's chance of success with his chosen audience, the motive is praiseworthy and the execution of his plan admirable. The age and traditions of Harvard, the vicissitudes of its past, the strength and glory of its present, have all impressed him forcibly. He has not rested content with external appearances, but has penetrated the recesses of the lecture-rooms and of the "spreads" on class-day. He has come to know the student life in a way that is really surprising. There are also passages in the book, not a few of them, which indicate that, Oxonian though he be, Mr. Birkbeck Hill appreciates the objects for which universities exist, and feels the force of the differences between Harvard and Oxford.

"What a hold should we get on men of the noblest minds in the United States and through them on their countrymen, did we open wide our universities!" exclaims Mr. Birkbeck Hill. "What's Germany to them or they to Germany?" he adds. To answer this question and to comment properly on the exclamation, would require more space than is at my disposal. It may be said, however, that at the present time the English universities make little or no intellectual appeal to the American student. They charm his senses and enthrall his imagination. He loves to recall their great names and their past services to sound learning. He loiters in their grassy quadrangles and among their architectural monuments. But for scientific method, for scholarship at once minute and broad, for unrestricted opportunity and effective training in exposition and investigation, he must pass over the Channel to the bare and unromantic halls of Berlin and Leipsic, of Göttingen and Halle. The hold of the German universities on American scholarship is an intellectual one merely. A stronger and more effective intellectual force could loosen it at any time.

Mr. Birkbeck Hill's study of Harvard and its life will appeal strongly to American readers. It is sympathetic and fair, without flattering. Many a college man will enjoy every page of it.

N. M. B.

XUM

The education of the Greek people, and its influence on civilization. By THOMAS DAVIDSON. (In the *International Education Series*) New York: D. Appleton & Co., 1894, 229 p. $1.50.

The wide range of Mr. Davidson's information, and his enthusiastic advocacy of what he believes to be true educational ideals and sound educational methods, are well enough known to lead one to open this book with unusual interest. Four years ago, in his invaluable *Aristotle and the ancient educational ideals*, Mr. Davidson outlined and interpreted the educational theories and practices that Hellenism wrought out. In this volume he has set before himself the equally instructive and important task of describing the place of Greek ideals in universal history, and of estimating their value in that relation. The present book contains much that is repetition and reiteration, doubtless unconscious, of its predecessor; but it is none the less valuable on that account.

The opening chapter, entitled "Nature and education," furnishes, in succinct form, the philosophical standpoint that the book illustrates. The familiar distinction is drawn between the two significations of "nature," which Mr. Davidson calls *original* and *ideal*, and education is defined as the process by which a human being transcends his original, and attains to his ideal, nature. So anxious is the author to maintain this view that at the outset (p. 3) he commits himself to an astounding *non sequitur*; for there is nothing whatever in the phrase "develop the child's spontaneity," that necessarily conflicts with Mr. Davidson's view. Neither is there anything in it that necessarily allies it to the crude Rousseauism which he is inveighing against. This, of course, would be a small enough thing in itself, were it not that it indicates Mr. Davidson's rather rough-and-ready way of dealing with what he does not like. Similarly, the history of philosophy being what it is, "stupid" is hardly the most fitting epithet to apply to the controversy over dualism and monism (p. 8).

Having established his educational ideal, Mr. Davidson proceeds to indicate the method by which that ideal may be attained. This involves a sketch of a curriculum and an outline of educational values. Taken as a whole I can only describe the treatment of these topics as fantastic, although the discussion contains much that is valuable and suggestive. To insist that a university must have a fixed curriculum is to write in ignorance of what a university is or what it is for. To

cut up pyschology into mere parts of a dozen sciences is unnecessary trifling.

With his ideal and his method in mind Mr. Davidson proceeds to estimate the civilization of the Greeks. The political basis of this civilization is carefully and ingeniously traced. Departure from this basis, with the rise and spread of individualism under the stimulus of the philosophical movement best typified by the Sophists, is made the turning-point of Greek history. The attempts to resist individualism in a philosophic state, by Plato, and in a scientific state, by Aristotle, are studied and interpreted. Finally, Greece comes in contact with the Orient and with Rome and Christianity. Both are momentous occurrences, and the effect of each is marked on our civilization to this day. As a result of his survey, Mr. Davidson concludes: "As Christianity without Hellenism sinks into barbarism, so Hellenism without Christianity leads to destruction. Only when united, as humanity and divinity, do they lead to life and freedom" (p. 229). In these last chapters Mr. Davidson shows great philosophic insight, and is very happy in many of his interpretations of the great movement of thought that surrounded the early formulation of Christian doctrine.

Space does not permit me to enumerate the valuable elements of this history. It ought to be read, and read again. There is much in it to dissent from and not a little that is very extreme; yet it is a stimulating book.

Mr. Davidson's style suffers from his fondness for paradox and his violent characterizations. Hegelianism, for example, is set down as "only a modernized form of Neoplatonic Gnosticism," and Schopenhauerism as "little more than Orientalized Stoicism." Their theories of knowledge, alone, ought to have saved them from that.

No notice of the book would be complete that did not mention the illuminating preface by Dr. Harris.

N. M. B.

Waymarks for teachers, showing aims, principles, and plans of everyday teaching, with illustrative lessons—By SARAH ARNOLD, Supervisor of Primary Schools, Minneapolis, Minn. Boston: Silver, Burdett & Co., 1894, 276 p. $1.25.

The above is the title of a book that should be an inspiring presence in the library of every practical teacher. That which adds a greater value to the work is the fact that every sugges-

tion it has to offer has been tested in the schoolroom experiences of the author; the book is therefore eminently fitted to be a practical guide in the schoolroom. True to its practical character, the work plunges at once into the questions of material and method. Each one of the eight chapters (nature-study, language lessons, reading, spelling, geography, number, seat-work, and talks on school subjects) discusses the plan and purpose of the study in question, supplementing this by sample lessons on various topics, and by a large number of children's original language productions. There is no attempt made in this work, as is too frequently the case in books designed for guides in special method, to furnish the reader with a hasty and inadequate summary of the underlying principles. These are evidently presupposed in the reader's previous studies and preparation; but yet one finds here pedagogical principles concretely exemplified. The chapters are full of numberless excellent suggestions, hints, and illustrations that constantly betray the presence of guiding laws. On the whole, the book bears the stamp of careful preparation and thought; from a literary point of view perspicuity and simplicity seem to have been preserved without any sacrifice of professional tone. The book is well arranged for ready reference. Perhaps the most important chapter in the book, from a modern point of view, is that upon nature-study; this field is evidently one to which the author has devoted special thought and experiment. Certainly, in her opening chapter, she places before her readers very high ideals in this work; ideals, indeed, that must contribute to no other than the very highest end of education, character-building. That nature-study has a very significant bearing upon character-building, is a potent force to that end, is a proposition which the author maintains with vigor. In that it contributes to an appreciation of both the beauty and usefulness of nature as well as to the revelation of its law, nature-study enhances not only the power of the noblest faculties of the mind, but increases thereby the individual's capacity for usefulness and enjoyment. Of course such a presentation of nature as the author desires is very decidedly something more than *mere* nature; it is what the human heart has put into its environment, after all (both in racial and individual development), that we call beautiful, inspiring, ennobling. I am inclined to think that this is a fact that should be taken into account in

assigning to nature-study its true place in the curriculum. But I know of nothing more commendable in this entire volume than the spirit its author has breathed into the opening chapter. That teacher who cannot undertake lessons on nature in her school in this spirit would better leave them untouched. But this conception of nature-study by no means prevents the realization of other ends:

"The child should gain through every nature-lesson not only training in observation, new knowledge, and added power of expression, but also a greater power to see the beautiful, greater love of nature, and fuller capacity for enjoyment. Observation, knowledge, expression, enjoyment, these should be in some measure the outcome of every nature lesson."

Another commendable point in the author's presentation of this subject is the prominence that is given to quality of work rather than to quantity. I quite agree with the writer that, in the lower grades at least, the question of amount need hardly be considered; that the aims of each lesson, as stated above, call rather for an emphasis of quality, and that the selection of material should be determined by the child's environment.

On the whole, the illustrative lessons in nature-study are very fair guides. I note with pleasure the prominence given to life-processes and unfolding in connection with the study of plants; but there is a tendency, however, to adhere too rigidly to a fixed order of treatment, if these lessons are a fair sample of the author's order. No importance whatever seems to be attached to the observation of nature-groups, as such. Is not this line of observation, however, a very essential one in the right understanding of the individual object? Here, as elsewhere, the author's method is uncompromisingly, but intelligently, objective. The value of making the initial observations of animals those of function is not always appreciated, however. There is also too great a display of original productions of school children; the purpose of these language productions in this book, of course, is exemplification, but certainly one-fourth as many would have served the purpose as well and have been much more inviting. In her temperance physiology, we rejoice to note, the author has preserved what some have lost, her educational temperance.

Another chapter of this work deserving special mention is that treating of language lessons. Here the author undoubt-

edly recognizes the importance of this work and that practical success depends equally upon analytic and imitative work. Oral language, which is to draw its content from the thought-giving branches, such as nature-study, and to be an ever-present force in the child's cultural environment, is rightly regarded as of first importance. Here, of course, imitation is of chief importance, although the author introduces some very suggestive lessons designed to supplement the efforts of persistent and careful speaking, by calling the pupil's attention in suitable exercises to certain laws of correct speech. Written language is approached in something of the same way, both pictures and literary masterpieces being made use of as sources from which to draw the thought to be expressed. The value of the early use of literary masterpieces in the cultivation of stylistic excellence in the child's speech and writing is well brought out; indeed, this is one of the strong points of the book. But I am not quite sure that the true place of literature (fable, myth, or legend, or artist's masterpiece) can be so formally determined as is here the case in connection with the language work; in fact, one misses the connection with the aim of education as set up by the author.

This brings me to a consideration of the relative value of subjects and the basis of their position in the curriculum. The author has made no attempt to discuss this problem theoretically, yet a certain standpoint has been implied throughout the work. If there is any one subject that receives prominence enough to give a *motive* to the curriculum, it is nature-study. But the author's own grasp of this work shows that she is moved most seriously by the humanistic element in nature, *i. e.*, by the æsthetic and ethical content man has put into his nature environment. Why, then, does she give so meager a recognition to history and literature, including art, if the personal worth of the individual is to be the great end of the teacher's labors? After all, what is there to give the movement to the curriculum, to furnish a principle of succession that shall justly lay claim to pedagogical recognition, if it be not the historical development? Why, then, must the humanistic side of the child's culture wait upon the branches that offer no truly pedagogical principle of succession?

The remaining chapters are as worthy the careful perusal of the teacher as those I have just discussed. I have space for the mention of but one more, that on reading. In this

field the author is neither an extremist nor a stickler for devices. She recognizes that two things are essential in acquiring the art of reading: ready recognition of words in connected thought, and independence in the acquisition of new words. Hence we find both the phonic and the word or sentence method recommended, and the illustrations aim at simplicity and essentials in the attainment of the end rather than at artful device. The brief discussion of how to get good expression contains a great deal of good common sense, but one misses one essential point which is seldom given credit for its true value to-day—*imitation*. While it is true that in reading the ultimate court of appeal is the thought and emotion to be conveyed to the hearer, it is equally true that the primal source of our habits in expression when talking, is the imitation of those we are with. It is in this way that we form our standards; but the standards of many children are either false or weak or inadequate; they need to have models placed before them. This calls for the illustrative reading of the teacher far more, we are beginning to think, than our overscrupulous thought-work sometimes permits; are we not apt to forget that intelligent imitation has its place here as well as in the daily social life of the child, where persistent habit depends so largely upon the impulse to imitate?

It is seldom that one finds a treatise on special method that shows so thorough a mastery of the choicer arts and devices of the skillful and intelligent teacher. The book is replete with those apt and pointed suggestions upon method, management, and training, that will help without making helpless.

C. C. VAN LIEW

NORMAL, ILL.

College requirements in English (Entrance examination papers for 1893 and 1894)—By Rev. ARTHUR WENTWORTH EATON, B. A., Instructor in English in the Cutler School, New York. Second Series. Boston: Ginn & Co., 1894, 104 p. $1.12.

The publication of this book is especially opportune. Mr. Eaton prints as a preface the recommendations of the conference, which met in Philadelphia last May, to discuss the entrance requirements in English. The body of the book contains the requirements in English (and specimen examination papers of the past two years) from nearly every college in New England and the Middle States. Thus we are enabled

to see at a glance the obvious chaos of the past and the probable harmony of the future. A comparison of the various requirements, and of the varying examination papers, is as interesting as it is instructive. And it is to be hoped that the report of the conference will call forth a discussion of the principles which ought to underlie the selection of the books set for reading and for study. For such a discussion, Mr. Eaton's compilation furnishes an ample supply of material.

When we find on the entrance requirements for 1898 Books I and II of *Paradise Lost*, and when we see on earlier lists *Twelfth Night* and *A Midsummer Night's Dream*, we ought to remember that the average age at which a candidate enters college is seventeen or eighteen; and we cannot but ask ourselves if these books are likely to be profitable to boys and girls at that stage of immaturity. The love of literature must always be a growth; it cannot be a graft; and it needs tender fostering. To compel the young to study that which they are then unable to understand is likely to give them a strong distaste for the fare thus forced upon them. The proportion of college seniors capable of appreciating and enjoying *Paradise Lost* is not large; and among sub-freshmen the proportion must needs be smaller still. There is no necessity of giving to boys and girls literature so lofty as *Paradise Lost*, or so delicate as *A Midsummer Night's Dream* and *Twelfth Night*. The English language is fortunate in its possession of many books, the beauty and strength of which the young can be made to perceive readily; and it would seem the part of wisdom to set masterpieces of this type for preparatory work, rather than those other poems (higher perhaps or finer) for the full appreciation of which a long training is required.

Excellent are the suggestions of the committee that "each of the whole number of books should be representative, so far as possible, of a period, a tendency, or a type of literature; and that the whole number of works selected for any year should represent, with as few gaps as possible, the course of English literature from the Elizabethan period to the present time." In accordance with the first of these suggestions, we find the best lists divided almost evenly between prose and verse; and of the prose, one book will represent narrative style and another oratorical, while the verse selected will include specimens of lyric poetry and of dramatic. In accordance with the second of these suggestions, the best lists have books written

under Queen Elizabeth, Queen Anne, and Queen Victoria, as well as one or more volumes of American authorship.

There would probably be a general agreement among competent instructors that no example of the Elizabethan drama is better suited for classroom use than *Julius Cæsar*. The story and the characters are familiar and easily grasped, the language is simple and easily understood. Second only to *Julius Cæsar* is *Henry V*. Not quite so general in interest, and yet well suited for preparatory work, are *Macbeth* and the *Merchant of Venice*. It would be possible to pick out other plays of Shakspere not unfit for this purpose; but *Twelfth Night* and *A Midsummer Night's Dream* are not among them—for reasons already set forth. But there is no need really to go outside of these four; they could be made to serve in rotation.

For similar reasons, Milton's *Paradise Lost*, *Comus*, *Lycidas*, *L'Allegro*, and *Il Penseroso;* Pope's *Rape of the Lock* and *Dunciad*, Byron's *Childe Harold*, had better not be studied by the average sub-freshmen. Even with the best of teaching, there is a strong probability that the boy of seventeen will learn more easily to hate *Paradise Lost* than to admire it intelligently. And, as it happens, there is an abundance of verse in our language likely to arouse a boy's interest in poetry, and to lead him on to an appreciation of its beauties. Scott's *Marmion*, and *Lady of the Lake*, and his ballads; Coleridge's *Ancient Mariner;* Macaulay's ballads; Longfellow's *Miles Standish*, and his ballads; Whittier's New England legends; Tennyson's *Revenge*, and other battle-pieces in verse—all these lift up the heart of youth.

Representative orations and addresses offer but little difficulty of choice. A speech or two of Burke's and of Webster's suggest themselves at once. Emerson's *American Scholar*, and the *Fortune of the Republic* are both available. All these are to be found on one or another of the lists given in Mr. Eaton's volume. In addition to these, perhaps an inaugural of Lincoln's (with his brief Gettysburg speech), one of John Bright's eloquent appeals, possibly one of Curtis's polished addresses, and certainly Lowell's Birmingham speech on democracy, might well be drafted into the service.

Of written prose also there is wide possibility of selection. Already in use are the Sir Roger de Coverley papers, Lamb's essays, Macaulay's essays on Milton and Addison, Defoe's

History of the Plague, De Quincey's *Flight of a Tartar Tribe*, Thackeray's *English Humorists*, and Irving's *Sketch Book*— all excellent selections. Less satisfactory perhaps are Carlyle's essay on Burns and the greatly overrated *Life of Nelson*, by Southey. Other books which could be enlisted to advantage are Franklin's *Autobiography*, Dana's *Two Years before the Mast*, Parkman's *Oregon Trail*, Emerson's *Representative Men* and *English Traits*, Lowell's essay *On a Certain Condescension in Foreigners*, Holmes's *Autocrat of the Breakfast Table*, and Matthew Arnold's *Sweetness and Light*.

Among the works of fiction to be found on some of the lists in Mr. Eaton's collection is *David Copperfield*. It may well be doubted whether the vulgar style of Dickens does not unfit all of his writings for educational use. It may be the slovenliness of Cooper's style is the reason why *The Spy* and the *Last of the Mohicans* do not appear on any of these lists; but if this is the only reason for the exclusion it is perhaps insufficient. Scott's *Abbott* and *Ivanhoe* and *Talisman* are satisfactory selections, and so are George Eliot's *Silas Marner*, and Hawthorne's *Marble Faun* and *House with the Seven Gables*. Irving's *Tales of a Traveller* deserve the place given them, and so do the *Alhambra* and the *Conquest of Granada*, which have not yet attained the honor; and has not the time come to include *Uncle Tom's Cabin?*

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NOTES ON NEW BOOKS

The mention of new books in this place does not preclude extended critical notice hereafter.

All intelligent Americans will welcome the third edition of Mr. Bryce's *American commonwealth* (New York: Macmillan & Co., 1895, 2 vols., 724, 904 p. $4.00). It is carefully revised and rewritten throughout, and several entirely new chapters are added. Invaluable alike to the American and the foreigner who would study the workings of the great democratic experiment, Mr. Bryce's work will remain for all time one of the greatest achievements in the history of political literature. ——*King John* and *A winter's tale* are the latest additions to the Temple Shakspere, the handiest and most dainty of editions (New York: Macmillan & Co., 1895. 45 cents per vol-

ume).——Mr. Beasley has prefixed to his interesting account of *Prince Henry the navigator* a capital summary of geographical knowledge and discovery in the Middle Ages (New York: G. P. Putnam's Sons, 1895, 335 p. $1.50).——The newer and more appropriate methods of teaching and studying rhetoric are bearing fruit in such excellent compilations as *Orations and arguments*, edited by Professor Bradley of the University of California (Boston: Allyn & Bacon, 1895, 379 p. $1.00), in which masterpieces of Burke, Chatham, Erskine, Webster, Macaulay, Calhoun, Seward, and Lincoln are brought together with careful annotations.——*The training of girls for work* (New York: Macmillan & Co., 1894, 214 p. 80 cents) is a sensible, straightforward piece of writing by an Englishman. ——Professor Trotter of Swarthmore has done much to make clear what is meant by geography-teaching in his *Lessons in the new geography* (Boston: D. C. Heath & Co., 1895, 182 p. $1.00).——Seyffert's *Dictionary of classical Antiquities*, so well known and so widely used in Germany, has reached a third edition in the excellent English edition of Professors Nettleship and Sandys (New York: Macmillan & Co., 1895, 715 p. $3.00). ——Professor McMurrich's *Text-book of invertebrate morphology* (New York: Henry Holt & Co., 1894, 661 p. $3.00) easily takes rank at the head of all treatises on the subject intended for college use.——*Radiant suns*, by Agnes Giberne (New York: Macmillan & Co., 1894, 328 p. $1.75), is another of those attractive and amply illustrated works that are bringing the truths of modern astronomy within the reach of the average reader.——Teachers in search of material to use on holidays and anniversaries will doubtless find useful help in *Thoughts for the occasion* (New York: E. B. Treat, 1894, 576 p. $1.75).——A scientific work of a very high order and a capital text-book for college classes is *A students' manual of English constitutional history*, by D. J. Medley, M. A., of Keble College, Oxford (New York: Macmillan & Co., 1895, 583 p. $3.25). The author's arrangement is excellent, his scholarship accurate, and his style clear and interesting.——Mr. Richard A. Gregory of Oxford University expresses the hope that his little book, called *The Planet Earth* (New York: Macmillan & Co., 1894, 108 p. 60 cents), "will help to revive the observational astronomy of pre-telescopic times." It is attractive enough to do so.

XI

EDITORIAL

No excuse need be offered for having devoted the entire March issue of the REVIEW to the admirable and stimulating document called the Report of the Committee of Fifteen. It was possible thereby to render a service to the Department of Superintendence, to which the Report was to be presented, and also to the National Educational Association, whose property the Report, having been presented, became; and in rendering that service we are sure that all of our readers and contributors, had it been possible to have consulted them in advance, would have heartily joined, no matter what pressing matters were postponed or what personal disappointment or inconvenience was caused thereby.

The REVIEW printed the Report by the authority given, and under the conditions stated, in the following resolution, which was certified as having been introduced at a meeting of the Committee of Fifteen by Superintendent Gilbert of St. Paul, and passed unanimously:

> Resolved, That the reports of the three sub-committees be read by their respective chairmen before the Department of Superintendence at Cleveland, in February, 1895, and published in the EDUCATIONAL REVIEW for March, 1895; provided that the publishers of the REVIEW agree to furnish to each member of the Committee of Fifteen and also to each person appointed to discuss the Report before the Cleveland meeting, a printed copy of the Report; and immediately after the meeting to send to each educational journal desiring it, such a printed copy, with the request that it be published in as nearly complete a form as possible.

Not only have the precise terms of this resolution been scrupulously adhered to, but every member of the Department of Superintendence who has asked for it, in pursuance of notice publicly given at Cleveland, has received a copy of the Report—of course, free of charge.

It was obviously the intention of the Committee of Fifteen, in passing the above resolution, to secure as wide a knowledge as possible of the Report. Equally obviously, it was in the

interest of the reputation and prestige of the National Educational Association to have the Report, prepared with the assistance of an appropriation from its funds and by a committee selected from its strongest and best-known department, read and studied by every teacher in the land.

But it was the expectation of many, and among them the Editors of the EDUCATIONAL REVIEW, that this Report—expressly styled Preliminary—was to be revised in the light of the discussions at Cleveland and of such other criticism as it might receive, and then published, in a final form, with an introduction and appendices. It was also hoped that this final publication might be arranged for through the Bureau of Education, as that of the Report of the Committee of Ten had been. In a meeting held at Cleveland on the afternoon of Monday, February 18, the Committee of Fifteen discussed this matter. President Draper urged a further attempt to secure unanimity as to the recommendations of the Report, believing that, were such unanimity attained or substantially attained, the Report would be more effective as a guide to practical action. Dr. Harris dissented from this view rather strongly, expressing it as his conviction that discussion and deeper study of the problems involved would be promoted by the fact that the Committee was not unanimous. He further stated that he was exhausted by the labor already given to his part of the Report, and that the pressure of his official duties would render it impossible for him to go over the whole ground again with a view to reaching an agreement among all the members of the Committee. Without any decision being arrived at on this point, the discussion turned to the question whether or not it would be possible to make some publishing arrangement by which the National Educational Association might receive all or part of the profits accruing from the sale of the Report, in order that it might, if possible, reimburse itself for the appropriation made at Asbury Park to pay the expenses of this Committee. At this point, the president of the National Educational Association, who was present by invitation at the meeting of the Committee, stated that, in the interest of the National Educational Association, he had taken the precaution to have the Preliminary Report copyrighted, and that any profits resulting from its sale through the EDUCATIONAL REVIEW would accrue to the National Educational Association. The members of the Committee of

Fifteen characterized this statement as "generous"; which, of course, it was not: the Report being the property of the National Educational Association, it was simply just. After a long and somewhat desultory discussion no formal decision was arrived at and no vote was taken.

The next stage in the history of the Report was the passage of the following resolution, on Thursday evening, February 21, by the Department of Superintendence:

> Resolved, That we recognize the great value of the Report of the Committee of Fifteen setting forth the standards, defining educational values, and furnishing broad grounds for intellectual deliberations and discussion in the future; and that the Committee be, and hereby are authorized to put the Report and such dissenting opinions as they may see fit to use into form satisfactory to themselves, and to print the same, and that the Committee having performed this duty be discharged.

This indicated clearly enough that the Committee of Fifteen were to exercise their discretion as to the form in which the Report should finally appear. Pending action under this last resolution, the president of the National Educational Association is protecting its copyright in the Report, and objecting to the appearance, in pamphlet or book form, of any reprint of it that has not been arranged for either by the Committee of Fifteen or by the executive officers of the National Educational Association. Meanwhile every facility is being afforded for the publication of the Report, in whole or in part, in educational journals; this being contemplated by the Committee of Fifteen in order to spread a knowledge of the Report.

At this time (March 22) the Executive Committee of the National Educational Association and also the Committee of Fifteen have before them for consideration three propositions:

1. To give the privilege of issuing the Report in its final form to that publisher or educational journal who makes the highest bid for the privilege.
2. To fix a royalty, on payment of which to the National Educational Association, any publisher or educational journal may issue the Report in pamphlet or book form.
3. To let anyone who chooses publish the Report in pamphlet or book form, exacting no royalty whatever.

Within a fortnight—perhaps before these pages are read—a definite and permanent policy will have been officially decided upon. Meanwhile the National Educational Association is the sole beneficiary from sales of the Report. The Association is

an educational and not a money-making organization. Its first object should be to spread a knowledge of this valuable Report; but there are manifest advantages in having an authorized edition, or editions, of such a document, and to make that possible and effective is the aim of the officers of the Association.

The Committee of Fifteen, it may be necessary to remind some, is, like the Committee of Ten, an outgrowth of the work of the National Educational Association. Both committees were selected with great care, both were appointed by an authoritative body, and both were granted the use of a fund set apart for them by the directors of the National Educational Association. The work of the two committees puts before the country in systematic manner the question of the form, content, and value of the studies that enter into the curriculums of elementary and secondary schools. From this time on, this specific question must be faced both in the study and in the schoolroom. Neither Report makes any pretense of finality, but both take rank as the greatest American contributions thus far made to the scientific study of education.

At a time when public sentiment is demanding better trained teachers, and at a time when great cities like New York and Brooklyn are actively revising their school administration, and others like Philadelphia, Chicago, Boston, and Buffalo are casting about for an improved system of school organization, the parts of the Report of the Committee of Fifteen that deal with those subjects will receive special attention and arouse special interest.

The Committee of Fifteen was authorized and appointed at the annual meeting of the Department of Superintendence of the National Educational Association, held at Boston, Mass., in February, 1893. The members of the committee were: Superintendents Maxwell of Brooklyn (chairman), Seaver of Boston, Balliet of Springfield, Mass., Tarbell of Providence, Poland of New Jersey, Brooks of Philadelphia, Jones of Cleveland, Cooper of Galveston, Gilbert of St. Paul, Greenwood of Kansas City, Powell of Washington, Lane of Chicago, and Dougherty of Peoria, and President Andrew S. Draper of the

University of Illinois, and Dr. William T. Harris. The work of the committee was divided into three parts, and each part was assigned to a sub-committee of five, as stated in this REVIEW for January last.[1]

In one very important respect the Report of the Committee of Ten has an advantage over the most important part of the Report of the Committee of Fifteen—that dealing with the school curriculum. The latter is the personal production of Dr. Harris and is signed by no other member of the Committee. The Report of the Committee of Ten, however, embodied the mature opinions, modified by prolonged conference, of ten persons representing all sections of the country and all phases of secondary and higher education. For this very reason the Report of the Committee of Ten, considered as a representative document, carried an authority and commanded a respect that the work of the Committee of Fifteen cannot and need not hope to equal. The latter Report, however, will be given all the great weight that attaches to Dr. Harris's name and authority.

No one who was present at the Cleveland meeting of the Department of Superintendence is likely to dissent from the opinion that it reached a level never before attained by the larger educational gatherings of the country. Not only was the attendance large, but it was of the quality that makes any meeting excellent. The noisy element was conspicuously absent, and there was none of the disposition, so apparent at Richmond the year before, to stampede the meeting and to turn the platform into an arena. The debates have left a decided impression on the country, particularly that on Dr. Harris's report; a debate which in the opinion of many marked an epoch in the development of our educational theory.

The paper by Mr. Bright on the recent reforms in grammar school work was a statesmanlike production. Courage and wisdom were marked in every line of it, and to say that it produced a deep impression is to do it only scant justice. Miss Arnold and Miss Cropsey delighted the large audience with their contributions to the discussions, and caused regret to be more widely expressed than ever that they are heard so infre-

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quently. Colonel Parker has never appeared to better advantage, and both in discussing Dr. Harris's report and in the eloquent peroration of his closing address, he gave new evidence of his power and eloquence. On Thursday evening his closing paragraphs enthralled the audience, and chairman and audience alike must have regretted that there was anything to prevent their passing quietly out of the hall with Colonel Parker's words undisturbed in their ears and in their hearts. Professor Bryan of Indiana, who has never before spoken to the Department of Superintendence, made a strong impression; and his paper on child-study was wholly free from the exaggeration and false philosophy that not infrequently find foothold in papers on that subject. Superintendent Search's paper on "Individualism in mass teaching" proved to be something of a disappointment, and the writer was unable to reply satisfactorily to the attacks made upon his position.

The feature of the meeting was the debate, on Wednesday morning, on the report by Dr. Harris on the correlation of studies. Good as this debate was, it would have been still better and more fully appreciated had the printed report been distributed in advance to members of the department. That this was not done was due to a series of unfortunate misunderstandings, the discussion of which now would serve no useful purpose. The general feeling upon the matter, however, was so strong that henceforth, it is safe to say, the admirable example of the Northern Illinois Teachers' Association will be followed, and all reports or papers that are to be the subject of general discussion will be printed and distributed in advance.

Dr. Harris opened the debate, and the other participants were Principal Frank M. McMurry of Buffalo, Colonel Parker, President De Garmo of Swarthmore, Professor C. A. McMurry of Normal, Professor Hinsdale of Ann Arbor, Dr. White of Columbus, Professor Butler of Columbia College, and Superintendent Dutton of Brookline. The time expired before others could be heard, greatly to the regret of the large number who wished to hear Dr. George P. Brown, Principal John W. Cook of Normal, Ill., Superintendent Bright of Chicago, Professor Jackman of the Cook County Normal School, and others. The precise point in debate was really—though not nominally—the possibility of a correlation or concentration of studies within the curriculum. As might have been expected, this drifted into a pretty general dis-

cussion of Herbartianism. Dr. Harris had almost entirely passed over the Herbartian contentions in his report, and this drew from the representatives of that movement a pretty vigorous attack. Dr. Harris replied by accepting the doctrine of apperception as urged by the Herbartians, but he attacked the psychological basis of their doctrine of interest. On the whole, then, the discussion dealt most largely with two points: (1) the propriety of using the term correlation to include the interdependence of studies in the curriculum, and (2) the possibility of such interdependence being worked out on the basis of the doctrines of apperception and of interest. The general impression seemed to be that the Herbartians successfully defended their point of view, and that their contentions are worthy of, and must receive, careful study.

All of this diverted the attention of those present from the progressive features of Dr. Harris's report, which are several, and important. In addition to being an elaborate and philosophical discussion of educational values, it advocates putting Latin and algebra into the elementary schools (thus sustaining one of the most important and most violently criticised recommendations of the Committee of Ten), subordinating formal grammar to the study of literature, and unhorsing arithmetic as the despot of the elementary school. These are all excellent points, and we may now look for some progress in bringing these important reforms about.

Next year the Department of Superintendence will meet at Jacksonville, Fla., under the presidency of Superintendent Jones of Cleveland, O.

Among the most interesting school reports that have recently been issued are those of Superintendent Bright of Cook County, Ill., Superintendent Griffith of Utica, the Boston school committee, and a special document by Secretary Hill of the Massachusetts Board of Education dealing with the State examination and certification of teachers.

After discussing clearly and succinctly the plan and equipment of a country schoolhouse, what should be taught under the head of arithmetic, and the vexed question of nature-study, Mr. Bright devotes a few pages of robust English to the

despicable attacks that have been made from time to time upon Colonel Parker and the Cook County Normal School. It is refreshing to read his straightforward and emphatic sentences, and his analysis of the controversy is a masterly one. Mr. Bright, at least, knows that in this normal school Cook County has something to be proud of. It is to be hoped that he will bring all of his fellow-citizens to the same point of view.

Superintendent Griffith's report is interesting for its summing up of the results of Utica's experience with departmental teaching. This is so good that it is given in full:

Few if any cities of the country afford at the present time as good opportunities as Utica to study the relative merits of these two plans. Of our 18 primary departments 11 are organized on the departmental plan, 4 on the grade plan, and 3 have part in each plan. Of the 15 intermediate departments, 13 are on the departmental plan and 2 on the grade plan. Of the 3 advanced departments, the central advanced school has in each room a grade and 6 teachers with the departmental plan in the assignment of classes to teachers: and 2 new schools are organizing on the ordinary grade plan. For the two years during which I have been superintendent here, I have carefully and, I believe, impartially studied the two systems, not in the light of preconceived notions but with the sole purpose of trying to decide which is the better. The results as I have observed them are here placed in two groups, the first of which seems to bear in favor of, and the second against, departmental organization and teaching.

I. IN FAVOR

1. It allows a freer classification within the department, and probably makes the rapid promotion of the brightest pupils easier.

2. Large but backward pupils seem more willing to attend school because they are not exclusively with very small pupils.

3. The assembling of all the pupils of a department or school in a large room for devotional and other exercises is conducive to the unity of the school.

4. The advantage of a quiet room for study is afforded pupils who are not in recitation.

5. Needed change of position and exercise is constantly given pupils in passing to and from classes.

6. Teachers may teach classes they most like and are most competent to teach.

7. Poor teachers do less injury because they can be assigned to the so-called less important subjects; and the effects of poor disciplinary powers are less disastrous upon the general order of the school.

8. Because she can concentrate her interest and ability, a teacher of ordinary strength in higher grades will do better teaching of her subject viewed as isolated from other subjects.

II. AGAINST

1. There are no desks upon which to write in recitation rooms.
2. Much valuable time is used in the passing of classes.
3. Fewer pupils can be well taught by the same number of teachers.
4. Good teachers are required to do more than their share of the work in order that poor teachers may not so seriously injure the school.
5. Poor teachers can be effectually hidden.
6. It causes loss of time by teaching separately what belongs together.
7. It does not secure so good results, with an equal expenditure of time and strength, in the so-called instrumental subjects; for, do what we may, the teacher of arithmetic or geography does not hold herself as much responsible for the reading, spelling, use of language, and penmanship, as if she taught them. The best results of incidental teaching are largely lost.
8. It narrows the teacher both intellectually and in her sympathies for the children. This necessarily affects the school injuriously.
9. It greatly hinders and lessens the best results that may come from the correlation of studies, though it does not absolutely preclude such correlation.
10. It encourages advancement in special subjects rather than an all-around, harmonious development. Hence it lends toward an unbalanced education. A principal may lessen, but he cannot entirely hinder, this.
11. A teacher's influence in the formation of her pupils' character is very much lessened, The opportunities for influencing the character of a pupil are many more and much better if the teacher knows him in all his school work and life for even one year, than in only one subject for two or three years. To be sure the influence of a bad or weak teacher is correspondingly greater; but the advantage lies in the fact that by the grade plan such a teacher is soon revealed and may be dismissed, while in the department plan she may continue only partially known for years.

NOTE.—Of the above, Nos. 3, 4, and 5 of the first group and Nos. 1 and 2 of the second group are more the result of the ordinary arrangement of buildings than inherent in either the departmental or grade plan of organization and teaching.

From these results, all of which I have found during my study of the problem, I conclude:

1. In primary and intermediate grades the grade room plan is very much preferable.
2. In high school grades the departmental plan is preferable.
3. In the advanced grades—the last two or three below the high school—with strong teachers well educated and well trained, the grade room plan is preferable; with teachers as they average the advantages seem more nearly equal; but even here, with my present light and experience, I favor the grade room plan.

The Boston report shows progress in many directions. Not the least important of these is the partial emancipation of the superintendent from his hitherto undignified status. This

point has already been discussed in this REVIEW.[3] Evidences of growth and development are also apparent in the kindergarten and manual training work, and departmental teaching is having a full trial in the grammar grades.

In this connection it may be mentioned that Superintendent Balliet of Springfield, Mass., has been trying departmental teaching in the grammar schools under his direction. In his last annual report he bears this testimony to the success of the method: "Departmental teaching has been extended in nearly all our grammar schools as far as the seventh grade inclusive. In a few studies it has been extended below this grade. Wherever it has been tried in our schools the results have been good. I believe, however, that it is not well to have a teacher teach only one branch under the departmental plan. Each teacher ought to teach at least two or three branches, and these should form a group of closely related subjects. In this way teachers are not so apt to become narrow in their work, and related things are more likely to be taught in their true relations."

The handsome and effective *Bulletin* of the July meeting of the National Educational Association has just been issued by the Denver local committee. It contains the full programme both for the sessions of the Association and for those of the several Departments. The extremely low railroad rates, the great attractions of Denver and Colorado, and the promise of an unusually large and enthusiastic gathering, ought to attract the teachers in immense numbers from all parts of the country.

[3] VIII: 512